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Chemical Trade Journal Supplement,
February 4th, 1893.

THE

# CHEMICAL TRADE JOURNAL.

A WEEKLY NEWSPAPER DEVOTED TO

## The Commercial Aspect of the Chemical and Allied Industries.

EDITED BY

*GEORGE E. DAVIS,*

FORMERLY ONE OF HER MAJESTY'S INSPECTORS OF CHEMICAL WORKS,
CHEMICAL ENGINEER AND CONSULTING CHEMIST.

VOLUME XI.

[JULY TO DECEMBER, 1892.]

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THE

# CHEMICAL TRADE JOURNAL

AND

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**No. 267.** **SATURDAY, JULY 2, 1892.** **Vol. XI.**

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**E ADVERTISEMENTS.**

R SALE.—Established Colour Business, modern machinery; large water power; close to rails. X., *Chemical Trade Journal*

TAR AND AMMONIACAL LIQUOR.

IE Gas Committee of the Penrith Local Board are prepared to receive Tenders for the purchase of the surplus TAR and OR produced at their Works during 12 months ending July 1st, 1893. ilars from the undersigned. Tenders to Mr. G. WAINWRIGHT, Public , Penrith, not later than Saturday, July 9th.

E. SHAUL.

Works, Penrith.

## Notices.

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ertisements intended for insertion in the current week's issue reach the office by **Wednesday morning** at the latest.

## QUID LEGES SINE MORIBUS.

"I maintain that gasmen have no business to bother about these developments of the illuminating power of gas. The people who buy and not the people who sell the gas should take this trouble."

THE above quotation, taken from the inaugural address of the President of the Eastern Counties Gas Managers' Association at Sleaford, in March last, possibly represents the views of a very respectable proportion of gas managers throughout the country. There is then, presumably, some excuse for the unfortunate gas consumer, who may have the temerity to inquire for himself whether he is receiving a light equal to that which Parliament has endeavoured to secure for him.

Our valued and usually platonic contemporary, the *Journal of Gas Lighting*, is visibly agitated over a paper on "Testing the Illuminating Power of Coal Gas," by Mr. George E. Davis, and read before the Society of Chemical Industry, but it is to be hoped it will soon recover from the attack, bad as it seems to be. Our contemporary asks, "Why Mr. Davis took all this trouble with Salford gas?" If its editor had exercised the perception due to his exalted position, he might have solved the riddle without an undue expenditure of brain power. When gas consumers have to supplement their supply of gas light with paraffin lamps, there must be something rotten in the state of Denmark which requires looking into.

We find on referring to the original paper sufficient reason was given why Salford gas was employed for the purpose under discussion, but this has been carefully suppressed by our contemporary, who, nevertheless, has not hesitated to hang his question and inuendoes on the broken chain. Our contemporary, usually so well informed, must surely be aware that serious complaints have often been made at various gas-works respecting the illuminating power of the supply. Many tests and complaints have to our knowledge been made, but because "candles" have not been employed as the standard, the complaints have been brusquely treated and left without redress, in some cases even being told that "candles" were the only correct standard. It is high time that attention was directed to the administration of gas affairs, with the view of securing justice to the consumer; doubtless this was Mr. Davis's aim in reading the paper to which allusion has already been made, and we should imagine he has succeeded beyond his expectations. Facts are facts which neither the frigidity of a gas committee, the sneers and inuendoes of its chairman, nor the *ad captandum* arguments of a newspaper editor can alter, and it argues very ill for a case where a motive is imputed for every act, and the plaintiff's attorney systematically abused. The fact of a gas supply having contained within it from 7 per cent. to 14 per cent. of nitrogen, with from 1 per cent. to 2 per cent. of oxygen, should be at least *prima facie* evidence of low illuminating power, and a necessity for inquiry; and he would be a very bold man who

would argue the contrary. Practice has proved the consumer to be powerless to enforce his legal rights, or even to secure justice, and Mr. Davis is to be complimented upon the success of his efforts to bring the matter to the front. The unbiassed nature of the article in our contemporary is further exemplified by the omission of all reference to a paper read at the same meeting by Mr. C. H. New and bearing upon the question at issue.

## THE RESULTS OF CHEMICAL MANURING.

A SERIES of experiments have been made during the past ten years, by the East Suffolk Chamber of Agriculture, with a view to gaining some reliable evidence as to the advisability of manuring grass land, in accordance with prevailing customs. The trials were made at Saxmundham on poor heavy land, with a clay subsoil. The manures tried were the following :—

| MANURE. | Quantity per acre. | Cost per acre. |
|---|---|---|
| | lb. | s. d. |
| Compound manure, containing potash, phosphates, nitrogen, and magnesia .. .. | 424 | 25 6 |
| Pure dissolved bones .. .. .. .. | 496 | 33 0 |
| Superphosphate .. .. .. .. .. | 1,044 | 33 0 |
| | cwt. | |
| Gypsum .. .. .. .. .. .. | 32 | 32 0 |

The following table shows the results for 1891, for ten years, and the excess over unmanured plots on the average of ten years of all the experiments :—

| MANURE. | 1891. | Average of Ten Years, 1882-91. | | |
|---|---|---|---|---|
| | Yield per acre. | Yield per acre. | Excess over Unmanured Plot. | Value of Excess. |
| | lb. | lb. | lb. | £ s. d. |
| Compound manure .. .. | 4,312 | 4,277 | 1,263 | 2 5 0 |
| Pure dissolved bones.. .. | 3,418 | 3,608 | 594 | 1 1 0 |
| No manure .. .. .. | 3,225 | 3,014 | — | — |
| Superphosphate .. .. | 2,880 | 3,387 | 375 | 0 13 0 |
| Gypsum .. .. .. | 3,106 | 3,198 | 184 | 0 6 6 |

It will thus be seen that the compound manure was the only one which paid for its use. This compound was made in the following proportions :—

| | lbs. |
|---|---|
| Superphosphate (containing 13·5% sol. $H_3PO_4$) .. | 106 |
| Muriate of Potash .. .. .. .. .. | 93 |
| Nitrate of Soda .. .. .. .. .. | 26 |
| Sulphate of Ammonia .. .. .. .. | 10 |
| Sulphate of Magnesium .. .. .. .. | 53 |
| Gypsum .. .. .. .. .. .. | 106 |

This composition gives 14·5lb. of ammonia, 48·5lb. of potash, and 14·5lb. of phosphoric acid per acre. It will be noticed also that this mixture is largely composed of those chemical manures which in themselves were apparent failures, showing that the fault does not lie with the manures so much as with the want of judgment in their application. In order to assure the reliability of these tests, extensive meteorological observations were also made so as to witness the effect of the weather upon the crops obtained. The net profit in the case of the compound manure, after allowing for the cost of the same, amounts to £1. per acre.

## CASTOR OIL.

CASTOR OIL is a commodity which is used to a considerable extent in various operations connected with chemical industries. The purity of the oil is an essential in most cases, particularly to dyers, by whom it is very extensively used for batching purposes, more particularly in connection with Turkey red dyeing.

For long enough it has been well known that the chief source of supply is Marseilles, and it is generally accepted that the oil obtained from this quarter is better than that obtained elsewhere.

Having cause to doubt this point, some experiments have recently been made by Prof. Boverton Redwood, upon some oil obtained from Belgium. For the purpose of his experiments he took a sample of Marseilles oil from a consignment which had been shipped direct from France, and which had been prepared by a firm of high repute; so that nothing was left undone to assure the sample taken for the purpose of comparison being the best of the produce of Marseilles.

He also obtained at the same time a sample of castor oil shipped from Antwerp. Both samples were good and merchantable as regards colour and odour. On subjecting them both to a series of chemical and physical tests the following results were obtained :—

| | French. | Belgian. |
|---|---|---|
| Specific gravity at 60° F. ..... | ·9630 | ·9619 |
| Viscosity by Redwood's Standard Viscometer, in seconds for 50 c.c. at :— | | |
| 100 degrees F. ..... | 1,110 | 1,110 |
| 110 ,, F. ..... | 810 | 810 |
| 120 ,, F. ..... | 570 | 570 |
| 130 ,, F. ..... | 430 | 430 |
| 140 ,, F. ..... | 345 | 345 |
| 150 ,, F. ..... | 270 | 270 |
| 160 ,, F. ..... | 225 | 225 |
| 170 ,, F. ..... | 185 | 185 |
| 180 ,, F. ..... | 150 | 150 |
| 190 ,, F. ..... | 123 | 123 |
| 200 ,, F. ..... | 105 | 105 |
| Free acid (as Oleic) ..... | 2·14% | 0·85% |
| Iodine absorption ..... | 91·99 | 92·56 |
| Saponification equivalent ..... | 308 00 | 308 00 |

With glacial acetic acid, petroleum spirit and rectified spirit (4 vols. at 60° F.), the behaviour of the two oils was identical.

It is apparent from the foregoing that there is very little to choose between the two oils, with the exception of one or two points. These are the colour and the percentage of free acid. Contrary to the expectations raised by precedent the advantage lies with the Belgian oil, its colour being paler than that of the French. Viewed as a lubricant there is not the slightest doubt which of the two is the better suited for such a purpose. The objection to the use of vegetable oils for lubricating purposes on account of the presence of fatty acids is a very familiar one, and it appears that the French oil contains considerably more than twice as much free acid as the Belgian oil.

Another important factor is the price, in which matter the Belgian oil has the advantage. Messrs. Fuerst Bros., of London, have for a long time now made a speciality of this oil, and find that the facilities for shipping from Antwerp give them the supremacy in the matter of time, risk of leakage and similar conditions. It seems, therefore, that instead of the French oil being the better of the two, whatever points of difference there are between the oils, the Belgian is in every case superior to the French; a fact which should commend itself to the notice of all large users of castor oil, when it is remembered that the increased value is not attended with a proportional advance in the price.

## NEW ANTISEPTICS.

AMONG new antiseptics from coal-tar derivatives, says S. A. Walton, may be mentioned pyoktanin, methyl violet, the most antiseptic of the aniline colours. A solution of 1 in 1,000 is used in various eye diseases, phthisis, ulcers, etc. There is a yellow variety commonly known as auramine, also used antiseptically.

Lysol is a saponified phenol derived from cresols, and contains the higher homologues of carbolic acid. It is said to possess higher antimycotic power than carbolic acid, and to be less poisonous. This preparation is much used in Germany at the present time.

Retinol, a distillation product of pine resin, is a viscid fluid hydrocarbon. It is a non-irritating and stable antiseptic.

Europhen, iso-butyl-ortho-cresyl-iodide, contains 23 per cent. of iodine, and is non-poisonous.

Dermatol, a basic gallate of bismuth, forms a powerful antiseptic and dessicant.

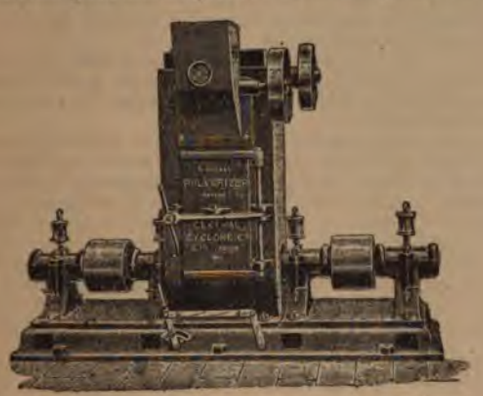
Sulphaminol, thio-oxydiphenylamine, the antiseptic action of which is due to its decomposition in contact with the fluids of the body into sulphur and phenol.

Monochlorphenol is prepared by the action of chlorine on cooled phenol. It is a powerful antiseptic and less irritating than trichlorophenol.

Camphoid, though only a mild antiseptic in itself, is a valuable adjunct to this class of bodies, as it forms a ready method of applying antiseptics to the surface of the skin, and owing to its composition (of spirit, camphor and pyroxylin) it forms a valuable solvent for substances such as salicylic acid, resorcin, hydronaphthol and many others.

## GRINDING AND PULVERIZING MACHINES.

THERE are a great number of machines in the market now-a-day for grinding, crushing, and effecting disintegration in all forms. Among these is the "Cyclone" Pulverizer, which, as it name implies, is somewhat different in principle to a great many of these machines. The illustration given below represents one of these pulverizers.



As will be seen they are self-contained, compact and also automatic. The chief advantage is the absence of screens, sieves and mesh grading, while the material under treatment is ground till it leaves no residue.

The principle of the reduction is that of impact produced by two fans rotating at high velocities in opposite directions.

The system by which the ground material is removed from the destruction chamber is a pneumatic one, the central up-take of the machine, owing to its construction, effecting the separation, blowing the ground substance into the depositing chamber. At the same time though grinding to an impalpable powder there is no dust and the liability to clog is reduced to a minimum.

Though now working in this country with success upon cereals wood, Fuller's earth, &c., this pulverizer is specially suited to the requirements of

PAINT MANUFACTURERS

who will find for grinding barytes and dry pigments it is one of the few machines which will meet the exacting conditions requisite for the grinding of paint materials.

We have already in these columns referred to certain slags which have been most successfully rendered fit for the production of red pigments in the United States, by means of this pulverizer, which has earned for itself a very good name in that country.

Some idea of the wear and tear of the machine may be gained from the fact that for a mineral containing from 15 to 20 per cent. of Silica, the cost on this score averaged 2d. per ton, while the life of these machines has been greatly lengthened by recent improvements; the grinding fans being capable of being interchanged eight times, thus making one set of faces last eight times as long as formerly.

These pulverizers are made in four sizes, and a very fair estimate of their respective capabilities may be formed from the following table :—

| Machine. | Nom. H.P. Required. According to Material. | Output per Hour. According to Material. | Approximate Weight. |
|---|---|---|---|
| No. O. | 5 to 6 | 4 to 8 cwt. | 1,500 lbs. |
| ,, I. | 8 ,, 10 | 6 ,, 15 ,, | 2,500 ,, |
| ,, II. | 10 ,, 12 | 12 ,, 20 ,, | 5,000 ,, |
| ,, III. | 12 ,, 15 | 18 ,, 30 ,, | 8,000 ,, |

Our second illustration, as the name on it implies, represents the Cyclone Disintegrator and Bone Mill. The special feature about this mill is the beater, which is changeable and reversible. The draw-back usually attending this form of machine, owing to the liabilility of the arms to become detached from the boss is also obviated. Both these machines may be seen in operation at the works of the Central Cyclone Co., Limited, where the experimental grinding of bones, minerals, phosphates, textile materials, and almost any other substance is performed in the presence of clients and experts, free of charge.

We may add that this company exhibited at the show of the Royal Agricultural Society, at Warwick, and that their stand was thronged by visitors. The head offices of the company are at 9 and 11, Fenchurch Avenue, London, E.C.

## TRADE RETURNS.

AS an instance of how the returns of public companies are furnished on the Continent, we append the following :—

Business report of the Actien-Gesellschaft für Chemische Industrie in Mannheim, for the year 1891.

REPORT OF THE PRESIDENT.

The year 1891, concerning which we have the honour of reporting, was by no means unfavourable for our goods.

The home trade has, it is true, become less favourable through increased competition and bad trade in certain branches of industry. We have, however, succeeded in making up for this by an extension of our foreign transactions, so that the receipts have increased to 2,806,746·51 marks, as against 2,625,868·48 marks in 1891.

The establishment of new works, commenced in the previous year, and the enlargement and improvement of those already existing have been steadily carried on, and the expectations founded upon them fully satisfied. The serious fall in some products has tended to diminish the profits.

We have, fortunately, been very free from bad debts. The sum of 1023·59 marks estimated in the past year to cover this item has proved sufficient, and we are even able to include in our balance a sum of 1611·87 marks, for payments due from previous years.

For various matters, out of which expenses may arise, we consider that the sum of 3,300 marks to be set aside for a new special account will be sufficient.

The trade of the present year may, in view of steadily increasing receipts, be termed satisfactory.

The President,
BÖHM pp. E. SEXAUER.

REPORT OF THE AUDITOR.

We have examined the following account and found it to agree with the books.

The profit of 95,843·23 marks we propose to expend according to the proposal of the president, as follows :—

*Deductions*—

On plant :

| | | |
|---|---|---|
| Buildings, 2%; streams and canalisation, 5%; machines and apparatus, 7½%; utensils, 10% ..... | 22,856·36 | |
| Railway trucks, and vessels for transport .... | 6,102·31 | 28,958·67 |
| | | 66,884·56 |
| From the remaining ..... | 66,884·56 | |
| Deduct Balance from 1890 .. | 354·68 | |
| Marks | 66,529·88 | |
| 5% on this to the legal reserve fund ..... | | 3,326·49 |
| | | 63,558·07 |
| Dividend of 4% on 1,000,000 marks (capital) | | 40,000 |
| | | 23,558·07 |

| | | |
|---|---|---|
| Expenses | 5,653·92 | |
| Special dividend, 1% | 10,000 | |
| Tips | 800 | |
| Guarantee account including the writing off of patents | 3,500 | |
| | | 19,953·92 |
| | | 3,604·15 |

According to Section 18 of the Bye-laws, the election of an auditor for four years is necessary.

Mannheim, May 16, 1892. KLOFFER, Auditor.

BALANCE SHEET FOR YEAR ENDING DECEMBER 31ST, 1891.

DEBIT.

| | |
|---|---|
| Mortgages, buildings, machines, plant, railway junction | 619,012·30 |
| Movable plant and utensils | 33,492·84 |
| Railway trucks | 26,590·15 |
| Manufacturers' raw materials, packing, etc. | 636,958·75 |
| Effects | 4,743·60 |
| Exchange | 18,449·21 |
| Cash | 5,095·34 |
| Debts | 306,224·92 |
| Patents | 6,975·70 |
| Prepayments | 2,055·63 |
| | 1,659,598·44 |

CREDIT.

| | |
|---|---|
| Share capital | 1,000,000 |
| Legal reserve fund | 1,597·62 |
| Special | 20,000 |
| Creditors | 491,441·32 |
| Acceptances | 50,686·27 |
| Dividend account (unclaimed dividend) | 30 |
| Profit and loss account—profit, 1891 | 95,843·23 |
| | 1,659,598·44 |

PROFIT AND LOSS ACCOUNT.

DEBIT.

| | |
|---|---|
| Expenses, salaries, taxes, insurances, interest | 125,703·86 |
| Nett profit, 1891 | 95,843·23 |
| | 221,547·09 |

CREDIT.

| | |
|---|---|
| Balance from 1890 | 354·68 |
| Gross profit, 1891 | 219·580·54 |
| Payments from previous years | 1,611·87 |
| | 221,547·09 |

## TESTING BEESWAX FOR ADULTERANTS.

BY C. SHERRAD.

FEW articles of commerce, as extensively used, are more susceptible to easy and successful sophistication than beeswax. This is especially true when paraffin or ceresin, or both, is made the adulterant. Other adulterants as water, kaolin, starch, flour, resins, fatty bodies, gypsum, etc., were not considered in the tests made, from the fact that they are rarely or seldom employed for the purpose named. Various methods for the detection of paraffin and ceresin have been suggested and applied, most prominent of which is the one given by Allen in his Commercial Organic Analysis.

The results obtained by the application of the sulphuric acid test, as detailed by Allen, led to some doubt as to its reliability in two particulars: the first being the possibility of failure to decompose all the beeswax at the temperature and in the time specified.

Second, this being true, whether or not some of the paraffin or ceresin might not be destroyed under the conditions which insured the complete decomposition of the beeswax.

The sulphuric acid test is carried out by heating five grams. of the sample to 130° C. in a capacious flask with 50 c. c. of concentrated sulphuric acid. Charring takes place, and sulphur dioxide and other gases are evolved, causing the fluid to froth considerably. After about ten minutes the mixture becomes almost solid, when it is allowed to cool, the acid removed by washing with water and the residue treated with a little cold alcohol to remove adhering water. The filter containing the black residue is then exhausted with hot ether, preferably in a Soxhlet's tube, when the ether yields the hydrocarbon wax on evaporation. It should be weighed and then again treated with sulphuric acid and the residue exhausted with ether as before, as a little beeswax is liable to escape decomposition during the first operation.

In applying this test it is necessary, in order to obtain as nearly a uniform temperature as possible, to stir the solution almost constantly after it has attained the temperature of 130° C.; in this way the temperature is kept almost uniform throughout, or as nearly so as possible.

Without the stirring the different strata in the container would be subjected to different degrees of temperature. So that if the temperature were adjusted to 130° C. for the lower stratum, the upper would be considerably less, and so for any other adjustment there would be a lack of uniformity of temperature, hence the necessity for the careful stirring during the heating process.

The U. S. P. test for paraffin as an adulterant consists in heating five grams of the wax in a flask for 15 minutes with 25 grams. of sulphuric acid to 160° C. and the mixture diluted with water; no solid, wax-like body should separate.

Applying Allen's test, but extending the time to 15 minutes, observing the precautions previously mentioned, and further modifying it by finally dissolving the undecomposed wax or impurities in a given amount of chloroform and decanting an aliquot part for evaporation. [The chloroform was adopted in preference to ether, as it was found by several experiments to have in the cold a better solvent action on ceresin and paraffin than was the case with ether.] Applying this test to a sample of yellow wax known to be pure, there was found to be after the first operation 22·8 per cent. of the wax undecomposed. Repeating the operation on this residue there still remained undecomposed 12·1 per cent.

A good grade of paraffin was then subjected to the same with the result that after the first treatment there remained undecomposed 81·6 per cent., and after the second treatment 64·8 per cent. remained undecomposed. From this it will be seen that even at the temperature specified the wax is not wholly decomposed on a repetition of the process, and further that this process applied to paraffin decomposes that body to a very appreciable extent.

Consequently a pure wax will be reported adulterated, while an adulterated wax will show probably a lower percentage of adulteration than that actually present, notwithstanding the compensation which occurs by reason of the wax not being entirely decomposed. As a result of these preliminary experiments I was led to make a further trial on pure wax at higher temperatures and for a longer period of digestion, with a view of fixing the lowest temperature and time that could be employed to fully decompose the wax, and having determined that point, to then obtain some idea of the extent of carbonization of ceresin and paraffin when treated similarly.

TREATMENT OF THE WAX.

A sample of beeswax known to be pure was treated successfully at 130°, 145°, and 160° C. for thirty minutes, and yielded respectively of undecomposed wax 12·7 per cent., 6·0 per cent., and 0·0 per cent.

A second sample, also fully believed to be pure, was treated exactly the same, and yielded of uncarbonized wax 12·6 per cent., 6·1 per cent., and 0·0 per cent.

TREATMENT OF PARAFFIN AND CERESIN.

A sample of paraffin treated at 130° C. for fifteen minutes yielded 8·86 per cent. of residue, showing a carbonization equal to 18·4 per cent., and when the operation was repeated there remained 64·8 per cent. of residue, showing a carbonization of 35·2 per cent.

When the same sample of paraffin was treated at 160° C. for thirty minutes the residue was only 30 per cent., thus showing that it had suffered carbonization to the surprising amount of 70 per cent. It will be remembered that this is the temperature, but not the time of the pharmaceutical test.

Ceresin treated at 160° C. for thirty minutes yielded 59·3 per cent. of residue, and was therefore carbonized to the extent of 40·7 per cent.

INFLUENCE OF TEMPERATURE WITHOUT THE PRESENCE OF SULPHURIC ACID.

The question now arose as to how much the above loss was due to carbonization and how much to volatilization at the high temperature employed. To settle this point paraffin and ceresin were heated on an air bath for sixty minutes at 160° C.; the paraffin lost 9·7 per cent., while the ceresin lost but 4·5 per cent., showing that volatilization, though comparatively slight, is not wholly to be ignored.

## THE NEW LEGISLATIVE MEASURES.

LAST Monday, the House of Lords met at three o'clock in order to attend to those bills which were ready to receive the Royal assent.

Among those which were brought forward were "The Alkali Works Bill" and "The Mersey and Irwell Prevention of Pollution Bill," both of which received the Royal assent by commission, thus becoming law.

## MODERN GAS ENGINES.

IT is now considerably over two hundred years since the introduction of what may be called the first *bonâ-fide* gas engine. Their growth went on but slowly until about 1860, when the Lenoir engine began to attract public notice in Paris.

About seven years later this matter of gas motors was taken up by Otto, and with him we enter what may be called the modern epoch, since the introduction of his compression system marked the commencement of a great advance in the general construction and principles of gas engines. Many motors of a similar nature made their appearance about this period, that known as the "Bisschop" being one of the most prominent.

Since then, however, and perhaps aided by the lapse of the Otto patents, the development of gas engines has advanced with rapid strides, until at the present day they have been brought to such a state of perfection that there are but few uses to which they cannot be successfully applied.

The chief improvements have been made with a view to obtaining perfect and regular combustion, evenness of running, and also overcoming the difficulties connected with starting engines of high power.

For the past twenty-five years Messrs. Tangye, of Birmingham, have made a special study of gas motors, and have recently introduced several engines designed for special purposes, varying in size from a quarter h.p. up to 146 actual horse power, whilst in coupled engines they run up to as high as 292 actual horse power.

Amongst the various advantages which these engines present, the most important is perhaps that afforded by the patent combustion chamber. In this improved form the combustion is so regulated that all shock to the working parts is avoided since the gaseous charge burns steadily during the power stroke. So successful are the results obtained by the use of this patent combustion chamber that steadiness in running is maintained in a most marked fashion, even when doing such work as driving dynamos direct. Another advantage which is claimed for this combustion chamber is that the valves in it are arranged so as to ensure a definitely timed and positive ignition.

In connection with electric lighting installations special attention has been given to the arrangement of a highly sensitive governor, by the aid of which these engines are able to work the electric light direct, with remarkable steadiness.

An important feature of this governor also is that it has been fitted with a very simple arrangement to allow the speed at which the engine is running to be regulated at will.

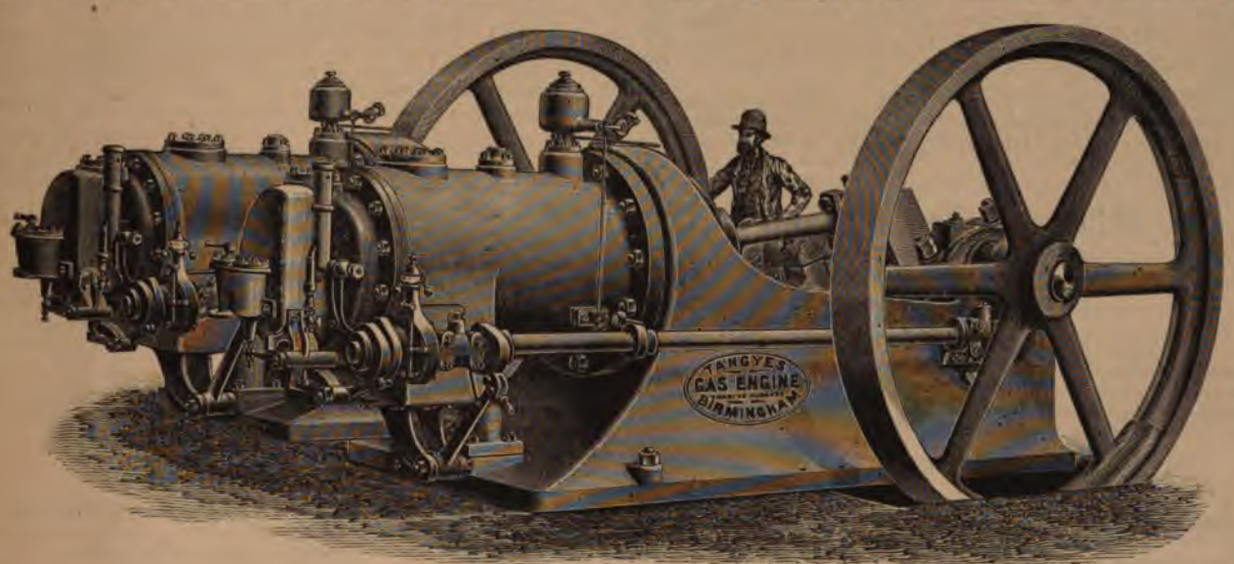
The advantage of being able to vary the speed of an engine while it is running, will be obvious to anyone acquainted with such matters, and by the aid of this governor three different speeds may be attained, the engine changing speed instantly; the governor at the same time adjusting the gas supply in proportion to the work being done, thus resembling the automatic cut-off in the steam engine.

In our illustration we show one of the high power engines made by this firm. It is a 70 h.p. coupled engine, giving 172 actual or brake horse power, and indicating 200 h.p. All these engines are tested to give this power before leaving the works with 16·5 candle power gas.

There are many difficulties which have stood in the way of the more general use of gas motors of large size, but the greatest, perhaps, has been the difficulty experienced in starting a large engine. This difficulty, however, has been taken in hand by Messrs. Tangye, and by the use of a patent positive pressure starter they have to all intents and purposes overcome this obstacle. Coupled engines can be easily and reliably started by this appliance, while engines of a power ranging between 5 and 16 h p. (nominal) are fitted with an ignition or timing valve and box, by means of which one man can safely start a 16 nominal h.p. engine without fear of the engine running back, since the relations between this and the other valves is so simple as to preclude the likelihood of such a contingency. For engines less than 5 nominal h.p. there is no need for an ignition valve.

It is, of course, necessary to take into consideration the economy of gas engines, and since this largely depends upon the nature of the gas employed, a factor which varies in every town almost, Messrs. Tangye in dealing with this subject specify that all their tests as to consumption, are made with 16·5 candle power gas. As the results of their tests they find that the amount of gas consumed by their engines is 20 cubic feet per hour per actual horse power in the larger sizes, up to 29 in the smallest; the amount of gas consumed, of course, being in proportion to the work done. The consumption of gas by these engines when running "light" is very low.

The saving that can be effected in fuel by the use of Dowson gas in lieu of ordinary illuminating gas is well known to be considerable, especially for engines of large size, and in order to enable those who use gas motors as the source of large quantities of power, to avail themselves of this economy, the larger sized and coupled engines made by this firm are specially arranged for the use of either common gas or producer gas.




In addition to gas engines alone this firm have made a speciality of several adaptions to which gas as a motor is well suited, such as self-sustaining friction hoists, either vertical or horizontal, and their patent rotary pump. The production of these engines necessarily entails a considerable extension of plant, and owing to the demand which this firm have experienced for their engines, they have nearly completed arrangements whereby they will be able to turn out on the average 60 engines a month.

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SERIOUS LOSSES IN U.S.A.—What with fires and explosions there has been a considerable amount of money lost and plant destroyed in America within the last few weeks. The turpentine distillery of Messrs. Coleman and Sharp, of Lyons, Ga., was entirely destroyed, including a considerable stock of fine rosin and crude turpentine. The loss is estimated at £500., there being nothing covered by insurance. The Pittsburg Plate Glass Works, at Creighton, U.S.A., were also destroyed and the plant almost completely destroyed owing to an explosion of chemicals. About 1,000 men are thrown idle, while the damage is computed to be from £10,000. to £11,000., of which only £3,800. is covered by insurance.

# Our Book Shelf.

PRACTICAL SEWAGE PURIFICATION. Peter Spence and Sons, Manchester. Cuthbertson and Black. 1892.

This *brochure* describes the application of the well-known process for the treatment of sewage known as the aluminoferric process.

The idea of adding alum salts to sewage and thereby precipitating and coagulating the soluble constituents of the sewage is nearly as old as the hills. It is certainly 25 years since it was first suggested, for in 1867 mention is made of the effect of alum on impure water in the *Technologiste*, where by the addition of ¾lb. of alum to a ton of water a precipitate is formed which rapidly settles, "the water becoming slightly richer in bicarbonates and free $CO_2$, while all organic matter is removed." It is likewise mentioned that 7 parts of sulphate of alumina will do the work of 10 parts of alum. But, for all that, Messrs. Peter Spence and Sons have worked up the old and well-known facts into a shape which renders them of practical value in the present day.

After touching upon the nature, composition, and properties of sewage, and some of the methods which have been suggested for its treatment, the aluminoferric process is described in detail. The process is undoubtedly meritorious, because it has produced, and is producing, good results in many parts of the country, and provided enough of the precipitant is used the process undoubtedly ranks among the most successful systems of sewage disposal. Its forte, perhaps, lies in the fact that dye water can be treated with success, owing to the colouring matters combining with the aluminum salts present, and forming insoluble lakes.

The latter part of the pamphlet is devoted to a general estimate as to the cost of working the process, including the outlay on plant and chemicals, etc. We should recommend all those having to deal with purification of works' effluents to give this pamphlet a perusal.

# Official Memoranda.

*From the Board of Trade Journal.*

## THE CHICAGO EXHIBITION.

A communication has been received at the Board of Trade from the secretary of the Royal Commission for the Chicago Exhibition of 1893 forwarding a copy of the official "Handbook of Regulations and General Information," now being issued by the Royal Commission for the information of exhibitors and the public.

## WINE ADULTERATION IN GERMANY.

The *Moniteur Official du Commerce* says that the German Government has submitted to the Reichstag a Bill with the object of regulating the production of wines.

From a hygienic point of view it is forbidden to use in this manufacture compounds of barium, boracic acid, salicylic acid, salts of strontium, etc.; the maximum quantity of sulphuric acid will also be fixed.

On the other hand, the Bill recognises the legality of blending, and, within certain limits, that of the addition of water and sugar to wine, on condition that the merchants make known to the buyers the composition of the products so manufactured.

## MINERAL PRODUCTION IN NEW SOUTH WALES.

According to the *Sydney Mail*, the official tables show that, notwithstanding the alleged dulness of the times, the value of the mineral produce of the colony of New South Wales last year exceeded that of the previous year by the sum of £1,487,260. Of course this result is principally due, continues the *Mail*, to the great production of silver ore at the Barrier mines, which accounts for fully one half of the mineral produce. The total value for the whole colony last year was £6,655,000., and of this the value of silver and lead ores was £3,485,000. Nearly the whole of this produce goes away in the shape of ore more or less purified, for very little silver is refined in the colony. Second in value to the silver ore is the produce of coal, which last year reached in value very close to a million and three-quarters, and that was an increase of very nearly half a million on the produce of the previous year. The demand for coal varies principally with the foreign export, the local demand of the colony and of its neighbours being always steady and slowly increasing. That part of the trade can always be reckoned upon; but the demand from China and California is fluctuating. Still, as it stands, the value of coal raised is about half the value of silver ore. Gold, which once headed the list, now makes a very modest third. Still, even here, so far from the industry waning, the produce last year was £98,000. over that of the preceding year. The tin produce is about half the value of the gold, and in this particular article the value of the product is below that of the previous year. The best alluvial deposits have been worked out, and the tin market has not of late been encouraging enough to induce any very great outlay in lode-mining. The value of the copper produce was only about £205,000., and that was a slight advance upon the previous year. The value of limestone raised for flux purpose was £65,000. This has been principally obtained in the Barrier district, and to bring it to the mine enterprising capitalists have made several cheap railways which are valuable as showing what may be done in the way of light lines. There are several items which figure on the list which indicate the beginning of what may grow to be larger industries in the future, such as oxide of iron, bismuth, antimony, manganese, zinc, aluminite, cobalt, marble, etc. In all these small enterprises people are feeling their way, but they are doing enough to prove that the colony has a variety of mineral resources.


## NOTICE.

### LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of
THE CHEMICAL TRADE JOURNAL
From
MR. JOHN HEYWOOD,
2, Amen Corner,
Paternoster Row, E.C.,

On usual trade terms.


# Correspondence.

***We do not hold ourselves responsible for the opinions expressed by our correspondents.*

## *ANSWERS TO CORRESPONDENTS.*

C. C. Co., LTD.—The article will be found in another column of this issue.
C. A. Co.—Many thanks for your communication. We are sorry to have troubled you unnecessarily.
M. M.—We have forwarded forty copies.
L. AND Co.—The issue you require is No. 254.
T. P.—Your request has received our attention.
W. P. G.—Thanks for your letter.
T. H. S.—We have sent on the number you mention.
F. E. C. (Bordeaux).—We regret your inconvenience, and trust that you will not experience any difficulty in the future.
S. W. A. (Mass., U. S. A.).—Thanks for the report. It will be of value to us.
A. C.—Your request has been attended to.
T. F.—Thanks for your notification.
H. P.—The change of address has been made.
W. H. S.—Your request shall be acceded to.

## THE WOLVERHAMPTON PROSECUTIONS.

*To the Editor of the Chemical Trade Journal.*

SIR,—Adverting to my last on the Wolverhampton prosecutions, your correspondent, Mr. Jones, claims I ought to know 1st, "that free acid does not reach the sewage works."

Well, sir, I do not know that. Certainly, I never discovered any, nor heard of any such discovery, and my firm belief is that none does reach there, and further, there is no statement in my letter contrary to this opinion.

In your leader "The ethics of sewage treatment," the wisdom of objecting to small quantities of acid is questioned, and you deduce, sir, that seven tons per diem of acid would be required to neutralize Wolverhampton sewage, assuming its alkalinty equal to that of Salford.

Upon this, I remarked: "The amount of free acid, which is naturally reduced to a minimum, is not so much objected to as the combined or iron sulphate."

This leaves its presence possible as all negative proofs should, but in no wise confirms it, and minimises its importance in comparison with something of greater moment.

2nd. That "the salt of iron is chloride, not sulphate."

Now, I have an idea this will depend somewhat upon whether vitriol or muriatic acid is used by the galvanizers. Six months ago I knew galvanizers who were using vitriol for very good reasons. Time was when vitriol was almost universally used, but I believe efforts have been made to bring about the substitution of muriatic acid. For the present moment I cannot speak.

3rd. That the quantity of iron is many times over what I state.

Well, sir, my terms were "It is a common thing for Wolverhampton sewage to contain 50 to 80 grains per gallon of iron (as Fe) in solution. I have found it 200. I heard of it being more."

What is the contention here, anyhow?

If it is more than this, so much the better for my inference from the statement. At the same time it cannot be a very *common thing* for the sewage to contain more than 50 to 80 grains per gallon, since the average is less than 22, calculated from Mr. Jones's own percentage of iron oxide in the sludge. If the iron is not all in the sludge, then the works are not perfection, which I will not dare to assume after Mr. Jones's kindly warning.

Finally, my statement relative to mud is challenged, and dubbed absurd. I admit it is certainly very necessary not to cry down this mud, with such a quantity on hand, especially after a theoretical value has been put upon it; but a good thing need never go a-begging, and its own testimony should speak after two years' trial, when farmers are so keen to mark a good manure. I am in a position, however, to say exactly how many farmers' carts came for that manure during 1891-2, how many came a second time, and the uses many and varied to which it was put—*killing weeds* amongst others.

I must leave to practical agriculturists the advisability of dressing land year after year with sewage sludge containing 5-6 per cent. of iron oxides.

It is gratifying to hear that the demand is increasing (it generally does in spring), and that there are only 2,000 tons more on hand than last year.

Your second correspondent, Mr. Crosbie, has no reason for supposing my remarks specially directed to himself. I take it, sir, you introduced this gentleman's name under the impression that he was a galvanizer. Now, the Borough analyst (if Mr. Jones chooses in this case to be styled "Borough" analyst—that is his affair) has given his opinion that the worst cases now are not galvanizers. That is my contention, and though as Mr. Crosbie very truly remarks, the offence is neither greater nor less if committed by a chemical manufacturer, the analogy of the "Farmer and the frozen snake" becomes false.

It was just this false analogy which called forth my earlier remarks. It is likely to mislead manufacturers as to the desires and aims of Borough and County Councils, and Joint Committees for the Prevention of Rivers Pollution.

Speaking generally, but more particularly of the Joint Committees with which I am connected, there is no such spirit of ingratitude with regard to the efforts of manufacturers. Manufacturers as a body have declared their willingness to aid, and some even expressed their intentions of aiding in the work of cleansing rivers, and it is to be hoped that no misleading statements will put them off the track.

I am, etc.

W. NAYLOR.

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## DEATH FROM PARAFFIN, AND MEMBERS OF PARLIAMENT.

*To the Editor of the Chemical Trade Journal.*

SIR,—Notwithstanding the enormous development which has taken place in recent years in gas and electricity, there can be no doubt that oil lamps light the homes of a larger number of persons *throughout the world* than any other illuminant. Even in the United Kingdom alone, it has been estimated that over 10,000,000 lamps are in use. No wonder then that newspaper readers are every now and again startled by the recital of terrible accidents, too often resulting in agonising death. Mr. Alfred Spencer, of the London County Council, stated at the inquest on the late Lord Romilly that he estimated that there were 300 deaths a year caused in this country by unsafe lamps. Mr. Shean, of the Fire Brigade Association, expressed the opinion that ten per cent. of fires are caused by paraffin lamps, and Captain Shaw, the former superintendent of the London Fire Brigade, reported 156 fires in one year caused by the upsetting of lamps in London. Will a friend to humanity in each constituency ask the candidates, whether Liberal or Conservative, to pledge themselves to support a short Act of Parliament, compelling every lamp to have affixed to it an Automatic Extinguisher, as recommended in the reports of Sir Frederick Abel, Mr. Boverton Redwood, and Colonel Majendie, or must we wait until a bishop or a royal princess is burnt to death?

I am, dear sir, yours, &c.,

HUMANITY.

[We insert the letter of our correspondent in order to chronicle our opinion that the kind of legislation asked for is of a vicious and most dangerous nature. Taking the figures of "Humanity," 300 deaths per annum from the use of ten million lamps is a very small percentage, certainly much less than deaths from over-eating and improper feeding; surely, "Humanity" would not propose a special jaw-locker fitted and adjusted by Act of Parliament, to prevent over-eating. Education is the item required, not compulsion.—ED. *C. T. J.*]

# Trade Notes.

MESSRS. SCHOTT SEGNER AND CO.—The agreement between the Badische Anilin and Soda Fabrik, of Ludwigshafen, on Rhine, and the above-named firm having expired, we are informed that Messrs. Schott Segner and Co. will continue to carry on the business of aniline colour and tar products merchants at the same address, 26, Princess-street, Manchester, as heretofore.

AMMONIA SODA ALKALI IN U.S.A.—Messrs Fuerst Bros. and Co. have been appointed sole agents in the United States of America and Canada, for the "Rudder Brand" of ammonia soda alkali made by Messrs. Bowman, Thompson and Co., Ltd., of Northwich, and which is now being sold in America with a test certificate, this alkali containing 59 per cent. of real alkali.

**Obituary.**—It is with sincere regret that we announce the death of Dr. C. Schorlemmer. Born at Darmstadt in 1834, he studied chiefly at Giessen. He was first connected with Owens College, Manchester, in 1858, in the capacity of private assistant to Prof. Roscoe. In 1874 he was appointed to the chair of organic chemistry at the same college. One of the principal tasks undertaken by the deceased was the publication of a joint work covering the subject of chemistry, by himself and Prof. H. Roscoe.

THE JAZPAMPA NITRATE CO., LIMITED.—At a recent meeting of this company a dividend of 2½ per cent. was declared. Colonel North, in moving the adoption of the report, said the net profit of the year had been £17,000. They had, however, had considerable difficulties to contend with, and had eventually to lay down a railway at great expense where they had anticipated using an inclined plane. The company, however, were doing well enough to give the directors satisfaction, and a better dividend might be looked for at the next meeting.

THE PETROLEUM OIL TRUST.—The Petroleum Oil Trust (Limited) has been formed for the purpose of acquiring and working the petroleum oil deposits in the Peninsula of Gaspé, Province of Quebec, British North America. The share capital is £430,000., divided into 330,000 ordinary shares of £1. each and 10,000 seven per cent. Preference shares of £10. each, and the present is an issue of 7,000 seven per cent. preference shares, convertible into ordinary shares of the company of a like amount at the option of the holders at any time within three years by giving six months' notice in writing.

SERIOUS FIRE AT BELFAST.—The most serious fire which has occurred in Belfast for many years broke out on Tuesday shortly after noon on the premises of J. and J. Haslett, druggists, oil merchants, &c., North-street. Before the flames were extinguished five adjoining buildings were completely gutted and a number of others more or less injured. The damage is expected to reach £50,000. All the burnt premises, it is believed, are insured. The brigade arrangements and the supply of water were ineffective, otherwise the fire could have been confined to the premises in which it broke out.

DIAMINE BLACK RO.—This is a newly-patented black brough out by Messrs. Leopold Cassella & Co., of Frankfort-on-Maine, which is intended to be used as a bottom for indigo. By using it the depth of the indigo tone is increased, saving a large amount of indigo, without impairing in the least the fastness of the ultimate dyeings. The bottom is dyed with from 0·5 to 1·5% of the diamine black, according to the shade required, in a bath containing 5% of soda and 10% of Glauber's salt. After boiling half an hour, the material is dyed in the indigo vat in the usual way. They have also issued a pattern-card of some twenty dischargings of diamine colours.

AN EIGHT HOURS DAY IN THE ALKALI TRADE.—The Cheshire Alkali Company, Limited, have decided to place their process men at their Middlewich works on an eight hours shift per day, from the 1st of July. The shifts at present average twelve hours per day. Several hundred men will be affected by this concession, and the announcement has been received by them with the greatest satisfaction. This is the second important concession of hours in the alkali trade within the last seven months, the Oldbury Alkali Company, Limited, having adopted an improved modification of the 53 hours movement in December last.

THE GERMAN CHROMATE RING.—The large chemical factory Karl Neuhaus in Elberfeld, the chemical factory Griesheim, P. Römer and Co., in Saarau, and Silesia, the Union of Chemical factories in Nienburg have handed over the agency for the sale of their chromate to the firm Leisler, Bock and Co., Glasgow. The last mentioned firm have passed on the sole sale of chromate in Germany to the gold and silver institute, formerly Rössler, in Frankfort. This formation of a chromate ring has come upon the consumers so unexpectedly that they could not manage to make any other arrangements before it came into force. What influence this ring will have upon the textile industry cannot be foretold at present.

Messrs. John Fielding and Co.—Mr. John Fielding, of the Victoria Chemical Works, has made a deed of assignment. Unsecured liabilities, £2,259.; assets, £2,000.; fully-secured creditors, £2,000. The list of creditors contains the following:

| | |
|---|---|
| Bennett and Co., Little Hayfield | £59. |
| Bird, Thos., Joulgreave, near Bakewell | 27. |
| Bealey and Co., Manchester | 56. |
| Consolidated Bank, Manchester | 952. |
| Drabble, Geo., Matlock | 20. |
| Dunn Bros., Manchester | 76. |
| Greef and Co., London | 88. |
| Goodacre and Co., Liverpool | 19. |
| Hazelhurst and Sons, Runcorn | 23. |
| Hyland and Co., Manchester | 10. |
| Lewis, B., Carmarthen | 98. |
| Metcalf, W., Accrington | 49. |
| Midland Railway Co., Stockport | 45. |
| Midland Railway Co., Derby | 32. |
| Potter, E. P. and Co., Bolton | 75. |
| Spence and Co., Liverpool | 11. |
| Sanguinetti and Farjon, Marseilles | 247. |
| Tennants and Co., Manchester | 61. |
| Verminck, C. G., Manchester | 108. |
| Wyatt and Sons, Birch Vale | 19. |
| Worthington, E, Poynton | 14. |
| Whitehead, G., Manchester | 21. |
| Becker and Co., Oldham | 10. |
| Harrison, J., near Stockport | 20. |

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

Benzol is steady, though 1s. 8½d can only be realised for 90's and 1s. 3½d. to 1s. 4d. for 50-90's. There is no doubt the scare is passing away, and that we shall see benzol dearer shortly. In anthracene there is no change, 30% A being quoted at 10d. and 30% B 7d. to 7½d. Pitch is firm, and it is probable that the winter will see better prices.

The tendency of the sulphate of ammonia market seems to be towards improvement, but as yet it affects the quotations very little; on the whole, however, the market is better. Hull and Leith quotations are now at £9. 17s. 6d., and the same figure is obtainable at Liverpool. There is considerable enquiry for future delivery, but with the exception of a few Scotch contracts such parcels are not obtainable. July will probably accentuate the position, and a much better demand is expected. Beckton is nominally £10. 2s. 6d., while outside London makes remain without change.

## REPORT ON MANURE MATERIAL.

During the past week, owing no doubt partly to political affairs, there has not been much business doing, and prices of both phosphatic and nitrogenous material, excepting nitrate of soda, rather favour buyers.

Price asked for 75/80% Florida phosphate rock is still 9½d. per unit, but this price is not obtainable for U.K., and 9d. is probably nearest. Buyers seem in no hurry to pay the advance. For hot-air dried Peace River rock 7½d. is the asking price, and there are sellers of 60% Land Pebble rock at 7¼d. per unit. Sales of hot-air dried South Carolina have been made for U.K., it is understood at 7d., and 7d. would be taken for Carolina Land phosphate. Sales of 60% Canadian are reported at 6½d. per unit, not much higher grade offering. Quotations for Continental descriptions remain unchanged.

A cargo of River Plate bones, arrived at port of call, has been sold at £4. 2s. 6d., and this price refused for handy cargoes near at hand; £4. 5s. asked. Sales of crushed Kurrachee bones for autumn shipment have been made at £4. 5s. ex quay Liverpool, and that is closing value. £4. 5s. required for East Indian bone meal, fair average quality, for shipment, and £4. 10s. asked for fine quality, on sample. Good charring bones selling at £4. to £4. 2s. 6d. ex quay Liverpool, in bulk.

Owing to the combination among producers to restrict the output for 1892, there has been a good deal of speculation in nitrate of soda, and prices have advanced in all positions. It remains to be seen whether the agreement will be loyally adhered to, and whether for next spring the effect of the restriction will be again annulled by excessive shipments in January and February. It seems likely that producers will for their own sake stick together at all events until they have placed at satisfactory prices all that by their agreement they are permitted to ship in 1892, whatever may come after. On spot 8s. 3d. per cwt. is lowest for ordinary quality, and 8s. 4½d. for refined; 8s. 3d. has been paid for an ordinary cargo arrived at port of call, and 8s. 1½d. refused for a very large cargo about due. May and June shipments are worth fully 8s. 6d., and for later sailings more money is required.

Several parcels of River Plate dried blood, arrived and afloat, have changed hands at 8s. 6d. per unit. For home prepared 9s. 3d. to 9s. 6d. per unit asked f.o.r. at works, but not much business resulting.

## MISCELLANEOUS CHEMICAL MARKET.

There is no alteration to report in any of the prices for alkali. Demand still continues good for all grades of soda ash, both Leblanc and Solvay make, and quotations are steady at 1 5/16d. per degree, f.o.b. for 58%, and 1 5/16d. to 1⅜d. for Leblanc makes. For caustic soda the current quotations are f.o.b. Tyne, 77%, £11. 15s.; and f.o.b. Liverpool, 74%, £11. 5s.; 70%, £10. 5s.; 60%, £9. 2s. 6d.; 60% cream, £8. 17s. 6d, 10 ton lots. Bleaching powder is at £7. 10s. nett, f.o.r makers' works. Soda crystals without change. Chlorate of potash still offered at 6¾d. prompt, and 7d. forward. Chlorate of soda fully sold for some time, and spot parcels from resellers are quoted 8¼d. to 8½d. Recovered sulphur remains nominally at £5., f.o.r., but resales have been made slightly under this price. Vitriol and muriatic acids are without any change in price or position. For borax 29s. per cwt. is current value. Brown acetate of lime steady at £5. 15s. to £5. 17s. 6d. per ton at usual points, and firmer for forward delivery. Grey acetate of lime more active at £10. 15s. to £11. per ton. White sugar of lead is in small demand, but price nominal. Aniline oil and salt are without improvement. Carbolic acid crystals are in a similar position, and prices are unaltered. White powdered arsenic remains steady at £11. 12s. 6d. to £11. 15s., and there is fair demand for the article. Sulphocyanides are quiet. Bichromates are maintained at the recent advance. Potash, caustic and carbonate, are in moderate request, and prices are maintained. Salts of ammonia are in excess of requirements, and prices are consequently weak. Reports of trade in chemicals generally do not indicate any material improvement.

## LIVERPOOL OIL AND COLOUR MARKET.

LIVERPOOL, Wednesday.

OILS.—Palm oil is somewhat improved. It has been selling freely; the market is firm, prices ranging from £20. 7s. 6d. to £20. 10s. for Lagos. Other qualities have been moving fairly well. Olive: Last week's briskness continues to prevail and there is a moderate request at from £33. to £38. 10s. per tun. Linseed continues at 20s. 3d. to 20s. 6d. per cwt. in export casks, with a moderate business passing. Cottonseed: Last week's improvement is maintained, prices for Liverpool refined being 19s. 9d. American is still quoted 20s. per cwt. The market is steady. Castor oil: 2⅝d. is still quoted for good seconds Calcutta, but it has a tendency to weaken and enquiry is poor. Small sales of first pressure French have been made at 2 11/16d. per lb. Tallow is steady, market dull. Resin, common, rules at 4s. 1½d. but there is virtually nothing doing at that figure, and a reduction in price seems likely to ensue. Spirits of turpentine have not improved, to-day being if anything slightly weaker at 23s. 3d. to 23s. 6d. per cwt. American and Russian petroleum unchanged.

COLOURS.—Prices continue unaltered. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s., medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: common, £6.; medium, £10.; finest, £20.

## THE METAL MARKETS.

LONDON, Wednesday.—Pig iron slightly firmer; Scotch warrants closed at 41s. 4d. cash. Middlesbrough, 45s. cash, and Hematite 49s. cash. Copper dull: Chili bars, G.O.B.'s and G.M.B.'s closed at £44. 17s. 6d. cash, and £45. 6s. 3d. to £45. 13s. 9d. three months. Tin quiet: Straits closed at £99. 15s. to £100. cash, and £98. 15s. 3d. to £99. 5s. three months. Australian, £99. 15s. cash. English ingots, £102. to £102. 10s. Lead unchanged: Spanish, £10. 7s. 6d. to £10. 8s. 9d.; English, £10. 12s. 6d. to £10. 15s. Silesian spelter, ordinary, £21. 15s. to £22. Quicksilver, first hands, £7. 2s. 6d.; second hands, £6. 19s. 6d. Copper shares quiet: Cape, 1 3/16 to 1 11/16; Copiapo, 2 5/16 to 2 7/16; Libiola, 2¾ to 3; Mason and Barry, 3 15/16 to

4 1/16; Rio Tinto, 16¼ to 16⅜; Tharsis, 4 11/16 to 4 13/16; Namaqua, ¾ to 1; Panulcillo, ⅜ to ½.

GLASGOW, Wednesday.—Market idle. Scotch done at 41s. 6d. cash, also at 41s. 6½d. one month; closing with buyers at 41s. 5d. cash, and 41s. 6d., one month; sellers ask 41s. 6d. cash, and 41s. 6½d. one month. Hematite closes with buyers at 49s. cash; sellers ask 49s. 6d.

WOLVERHAMPTON, Wednesday.—At the last 'Change in the first half of the year to-day hopes were expressed that the ensuing six months will be less disturbed and more profitable. Galvanized sheets were quoted £11. 15s. for 24 gauge, with an improved demand from the East and West Indies and the Argentine Republic. Hoops are selling better for United States, and are quoted £6. 12s. 6d. Angles and rods are in better foreign request. Home business quiet, but steady. Best West Coast hematite pigs delivered, 59s.; Lincolns, 47s.; Northamptons, 44s.; Derbyshire, 43s.

## THE LIVERPOOL MINERAL MARKET.

There is no alteration to report in our market this week, which has well maintained its firmness. Manganese: Stocks are materially reduced, and prices continue firm. Borate, 7d. per lb.; sulphate £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite: Raw lump, more arrivals. Raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand) continues firm at full figures; lump 20s., seconds 16s., and thirds 12s. French chalk: Arrivals this week have been small and prices remain firm. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump scarce at 90s. to 95s.; nuts, 70s. to 80s.; whilst finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumice stone steady. Iron ore steady; Bilbao shipments unaltered; Irish and Cumberland easier. Santander and manganiferous, there is more doing. Emerystone: Best brands sought for at full figures. No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal firmer. Chrome ore: High grades in good demand at full prices. Antimony ore and metal flat; prices firmer. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. 10s. Calamine quiet. Strontia sulphate (celestine) quiet. Limespar is steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese steady, 75%, £12.; 85%, £13. 15s. Plumbago brisk. Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady; common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) steady; finest quality 22s. to 23s.

## TYNE CHEMICAL REPORT.

Tuesday.

The chemical trade is steady, with good business doing. Stocks of all chemicals on the Tyne are very light. Prices practically unaltered. Bleaching powder, softs, £7. 10s. per ton, and hards, £7. 15s. per ton; caustic soda, 76/77%, £11. 15s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £5. 2s. 6d. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52%, £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton, in 10 ton lots; silicate of soda, 75° Tw. £3. per ton, 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per ton; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 7d. per lb. less 6%; pearl hardening, £3. 10s. per ton nett; pure white sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta crystals, £19. per ton; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; hydrate of barium, £11. per ton.

South Durham salt quiet at 10s. per ton f.o.b. Tees.

Coals: There is a more plentiful supply all round, prices quiet. Best Northumbrian steam, 10s. to 10s. 6d. per ton f.o.b.; small steam, 4s. 3d. to 4s. 9d.; gas coals, steady at 8s. 6d. per ton; manufacturing coals, 4s. 9d. to 5s. 6d. per ton, at works on Tyne. Coke steady and in demand at 17s. 6d. to 18s. per ton.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, Tuesday.

Sulphate of ammonia is certainly firmer, and although there is very little buying for prompt delivery, the price must be set down as distinctly higher than could be rightly done a week ago. The forward market is still more in evidence in the same direction, and to-day £10. 5s. has been offered, and refused at least in one case. Spot value may be taken as from £9 15s. to £9. 17s. 6d., and the expectation of a further rise is generally entertained.

Ordinary chemicals still show little life and no noteworthy change of price. Sulphate of copper is quoted 10s. down.

Dye chemicals are rather more in request, owing to a partial recovery amongst the Scotch dye and calico printing works. Jute dyeing, for some time restricted to four and a half days a week, now covers five days at most of the works.

The paraffin scale hitch has not yet been solved, consumers refusing to contract at prices hitherto ruling and makers refusing to take less. Buying is virtually at a standstill, but this cannot continue much longer. Other paraffins unchanged.

Chief prices current are:—Soda crystals, £2. 17s. 6d., nett Tyne; alum in lump, £5. 10s., nett Glasgow; soda ash, 1⅜d., less 2½% Tyne; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 15s. and 1 cwt. cask £7., nett Liverpool; refined alkali, 1⅝d., less 2½% Tyne; bleaching powder, £7. 10s. nett Tyne; saltcake, 36s. 6d.; borax, English refined, £29. and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 6¾d., less 5% any port; nitrate of soda, 8s. 1½d. to 8s. 3d.; sulphate of ammonia, £9. 15s. to £9. 17s. 6d. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £15., less 5% Liverpool; paraffin scale (hard), 2 15/16d., and soft 2 5/16d. to 3d. per lb.; paraffin wax, 120°, semi-refined, 3⅝d. to 4d.; paraffin spirit (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English and Irish sales about 1d. lower); ditto (lubricating), 865°, £3. 5s. to £3. 15s., 885°, £4. 10s. to £6., and 890/895°, £5 to £7. Week's imports of raw sugar at Greenock were 54,215 bags.

# New Companies.

J. Grandison, Brown and Co., Limited.—Capital, £2,000., in £1. shares. Objects: To carry on the manufacture and sale of soaps, cleansing compounds, candles, oils, food, chemical, medicinal and drysaltery products, etc. The subscribers are:—

| | Shares. |
|---|---|
| J. G. Brown, 81, Virginia-street, Glasgow, manufacturer | 1 |
| J. Templeman, Holmhead-terrace, Cathcart, chemical manufacturer | 1 |
| H. Sinclair, Dixon-avenue, Glasgow, manufacturer | 1 |
| A. Noble, 33, Virginia-street, Glasgow, manufacturer | 1 |
| F. Ashton, Camberwell New-road, S.E., traveller | 1 |
| E. B. Balderson, 5, Melbourne-square, Brixton, S.W., gentleman | 1 |
| J. W. Horswell, 16, Lucas-road, Kennington Park, S.E., manufacturer | 1 |

Triple Oil and Composition Co., Limited.—This company was registered on the 20th inst., with a capital of £15,000., in £1. shares, to purchase the freehold premises of the Triple Oil and Composition Co., situate at Belvedere, Kent, together with the goodwill and assets of the business carried on by the company, and to carry on the business of manufacturers of lubricating and other oils, composition for ships' bottoms, and of all descriptions of paints, enamels, and varnishes. The subscribers are:—

| | Shares. |
|---|---|
| H. Baier, 27, Queen-street, Cheapside, engineer | 1 |
| A. Cooper, 44, Finsbury Pavement, E.C., wine merchant | 1 |
| W. Blakey, 57, Gracechurch-street, E.C., engineer | 1 |
| J. Harrison, 117, Leadenhall-street, E.C., accountant | 1 |
| G. Seymour, 4, Selsdon-villas, Barnes, S.W., mining engineer | 1 |
| E. Turner, St. Benet Chambers, 1, Fenchurch-street, E.C. | 1 |
| T. Black, 164, Suffolk House, E.C. | 1 |

Universal White Lead Syndicate, Limited.—This company was registered on the 16th inst., with a capital of £45,000., in £5. shares, to acquire and take over as a going concern the Electric White Lead Works carried on at Deptford and elsewhere, together with all letters patent, brevets d'invention, and protections, British, colonial, and foreign, granted to or applied for, or hereafter to be granted to or applied for, by or on behalf of Mr. E. V. Gardner, and, with a view thereto, to enter into the agreement referred to in clause 3 of the articles. The subscribers are:—

| | Shares. |
|---|---|
| C. Billett, 5, Copthall Buildings, E.C. | 1 |
| E. V. Gardner, Tremont, Florence-road, New Cross, S.E. | 1 |
| G. Jennings, 28, Gracechurch-street, E.C. | 1 |
| B. F. Babcock, 17, Water-street, Liverpool | 1 |
| B. Radcliffe, 28, Chapel-street, Liverpool | 1 |
| H. A. Mandeville, Anner Castle, Clonmel | 1 |
| W. B. Foulger, 6, Lime-street, E.C. | 1 |

WELSH ANTHRACITE COLLIERIES, LIMITED.—This company was registered on the 18th inst., with a capital of £100,000., in £1. shares, to acquire, hold, manage, and improve lands, heritages, and real estates, and rights in lands, coal, iron, and other mines, and industrial properties of every description in the United Kingdom and elsewhere, and to carry on the business of colliery proprietors, miners, quarrymen, ironmasters, smelters, founders, engineers, etc. The subscribers are :—

| | Shares. |
|---|---|
| J. J. Nelson, 48, Clarence-road, Manor Park, clerk | 1 |
| E. T. Wheeler, 100, Sandringham-road, Dalston, clerk | 1 |
| J. W. Paget, 44, Newark-street, Stepney, E., clerk | 1 |
| T. W. Stroud, 35, Northcote-road, Walthamstow | 1 |
| W. R. Hanover, College Hill Chambers, E.C., accountant | 1 |
| E. A. Mackey, 3, Cromartie-road, N., clerk | 1 |
| H. R. A. Maclean, 24, Portman-street, W., solicitor | 1 |

# The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

## APPLICATIONS FOR LETTERS PATENT.

**Disinfecting Compound.** M. Syer. 11,049. June 13.
**Galvanic Batteries.** W. L. Wise. 11,087. June 13.
**Production of Carbonate of Lead and Lead Pigments.** R. Mathews and J. Noad. 11,089. June 13.
**Oil Extracting Apparatus.** J. C. W. Stanley. 11,094. June 13.
**Heating Gas Retorts.** R. B. Anderson. 11,102. June 13.
**Evaporators for Treating Sugar, etc.** A. G. Berry. 11,125. June 14.
**Sewer Gas Destructor.** J. E. Webb. 11,127. June 14.
**Feed Water Heater Utilising Waste Gases.** T. Hosking. 11,132. June 14.
**Measuring Liquids or Gases.** C. T. Bullough. 11,137. June 14.
**Storage Batteries.** H. H. Lloyd. 11,147. June 14.
**Electrical Welding.** W. P. Thompson. 11,154. June 14.
**Extracting Gutta-Percha, etc.** H. E. Serullas. 11,166. June 14.
**Improved Copper Cleaning Fluid.** J. W. Blake and S. J. Blake. 11,168. June 14.
**Purifying Oil.** E. N. B. Grosche and T. E. Tack. 11,173. June 14.
**Solvent Compounds.** W. Read, junr. 11,174. June 14.
**Continuous Concentration of Sulphuric Acid.** J. Graham. 11,203. June 15.
**Treating Chloride of Magnesium, Sulphide of Sodium, and other Chemical Compounds.** J. J. Lish. 11,222. June 15.
**Fire Proof Cement for Boilers.** G. C. Taylor. 11,226. June 15.
**Cement Grinding Machinery.** W. W. Hewitt. 11,234. June 15.
**Refrigerating Apparatus.** H. E. Newton. 11,250. June 15.
**Crucibles.** C. King and J. Medley. 11,257. June 15.
**Filters.** A. M. Clark. 11.274. June 15.
**Antiseptic Disinfecting Compound.** J. M. Raymond. 11,257. June 15.
**Evaporating and Distilling Apparatus.** W. J. Mirrlees and D. Ballingall. 11,296. June 16.
**Recovering Tin from Tin Scrap.** J. P. Bayly. 11,297. June 16.
**Fire Extinguishing Apparatus.** A. J. Boult. 11,327. June 16.
**Improvements in the Manufacture of White Lead and Apparatus therefor.** R W. E. MacIvor and W. Smith. 11,337. June 16.
**Production of Manure from Raw Phosphates.** B. E. R. Newlands and J. A. R. Newlands. 11,341. June 17.
**Bleaching Composition.** J. Kennedy. 11,366. June 17.
**Manufacturing Compound and Elementary Products by means of Electricity.** H. Niewerth. 11,382. June 17.
**Filters.** J. G. Lorrain. 11,386. June 17.
**Purifying Liquids by Centrifugal Force.** A. Dubosc and E. Hermite. 11,387. June 17.
**Azo Colours on Fibres.** B. Willcox. 11,395. June 17.
**Preparing Dry Superheated Steam.** W. Schmidt. 11,399. June 17.
**Enamelled Bricks.** C. F. Hall. 11,408. June 18.

# Gazette Notices.

## PARTNERSHIPS DISSOLVED.

W. MURRAY AND W. CRABTREE under the style of W. Murray and Co., Knutsford, waterproof paper manufacturers.

E. W. KEATINGE AND G. A. W. BARLOW under the style of the Tynewydd Brickworks Co., at the Tynewydd Brickworks, near Rhyl, brick merchants, as far as regards G. A. W. Barlow.

LEDBURY BROS., Broomsgrove, ironmongers and oil merchants.

KINGDON AND MIDDLEHURST, Liverpool, paint dealers.

## BANKRUPTCY ACTS, 1883 and 1890.

### Receiving Orders.

MUNDY, HERBERT, Plymouth and Stonehouse, electro-plater and oilman.

HYATT, WILLIAM HERBERT, Harlington, chemical and scientific engineer.

### Adjudication.

MUNDY, HERBERT, Plymouth and Stonehouse, electro-plater and oilman.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending June 18th.*

**Acetate of Lime—**
U. States, 1,377 pkgs. H. Wallace & Co.
" 864 Lister & Biggs

**Acetic Acid—**
Holland, 5 pkgs. F. Stahlschmidt & Co.
" 50 Phillipps & Graves
" 42 Soundy & Sons

**Acetone—**
Holland, 14 pkgs. A. & M. Zimmermann
" 8 Beresford & Co.

**Alkali—**
France, 103 c. Petri Bros.
" 220 Arnati & Harrison

**Alumina Sulphate—**
Germany, 103 pkgs. Tough & Henderson

**Ammonia—**
Portugal, 3 pkgs. H. J. West & Co.
Belgium, 8 T. H. Lee

**Asbestos—**
France, £560 King Bros. & Co.
Holland, 215 Phillipps & Graves

**Barium Chloride—**
Germany, 49 pkgs. Petri Bros.

**Barytes—**
Belgium, 21 cks. Hemingway & Co.
" 22 J. L. Lyon & Co.
" 100 pkgs. W. Harrison & Co.
Germany, 19 P. Jantzen
" 46 Magee, Taylor, & Co.
" 24 O'Hara & Hoar
Holland, 22 "
" 44 W. Harrison & Co.
Germany, 23 S. Ward & Co.
" 19 Tough & Henderson

**Borax—**
Germany, 1 pkg. L. & I. D. Jt. Co.
" 20 F. Stahlschmidt & Co.

**Calcium Nitrate—**
Germany, 11 pkgs. B. & N. Wf. Co., Ltd.

**Caoutchouc—**
France, 47 c. Hopkins & Co.
Zanzibar, 37 Lewis & Peat
U. States, 32 Stiebel Bros.
" 10 J. Walker & Co.
E. Indies, 61 L. & I. D. Jt. Co.
" 34 W. M. Smith & Sons
Portugal, 12 "
" 26 Clarke & Smith
Zanzibar, 38 "
" 304 L. & I. D. Jt. Co.
Madagascar, 12 Procter Bros.
" 11 L. & I. D. Jt. Co.
" 3 Kleinwort, Sons, & Co.
Germany, 3 Lewis & Peat
France, 4 Flageollet & Co.
Madagascar, 9 A. Frey & Co., Ltd.
" 4 New Oriental Bank Co.
Germany, 22 L. & I. D. Jt. Co.

**Carbolic Acid—**
Holland, 25 pkgs. H. & G. Dutfield

**Caustic Potash—**
France, 106 c. J. A. Reid

**Chemicals** (*otherwise undescribed*)
Germany, 10 pkgs. W. Burton & Sons
" 52 A. & M. Zimmermann
" 50 T. H. Lee
" 15 Craven & Co.
Holland, 3 Phillipps & Graves
Germany, £8 Burgoyne & Co.
Holland, 6 J. Barber & Co.

**Copper Sulphate—**
N. Zealand, 25 pkgs. J. Moreton & Co.

**Cream of Tartar—**
Spain, 8 pkgs. Ross & Deering
" 2 B. & F. Wf. Co., Ltd.
Holland, 20 Middleton & Co.
France, 5 Robinson & Co.
" 5 J. Puddy & Co.
" 7 Smith, Abbott & Co.
Spain, 7 W. C. Bacon & Co.
Italy, 20 Italo-Brit. S. N. Co.
Holland, 30 B. & F. Wf. Co., Ltd.
Italy, 41 B. Jacob & Sons
France, 14 B. & F. Wf. Co., Ltd.

**Dyestuffs—**

**Aniline**
Holland, 3 pkgs. J. Forsey

**Anthracene**
France, 2 pkgs. Hernu, Peron, & Co.

**Argols**
Italy, 36 pkgs. Thames S. T. & L. Co., Ltd.
" 1,514 B. Jacob & Sons

**Cochineal**
Canaries, 24 pkgs. G. S. Bruce
" 45 Swanston & Co.
" 3 Marshall & French
" 10 W. M. Smith & Sons
" 49 Sperling & Williams

**Cutch**
Rangoon, 25 pkgs. Anderson, Fairley, & Co.

**Extracts**
Holland, 3 pkgs. J. Forsey
Austria, 68 Darling Bros.
France, 20 Prop. Chmbln 's Wf.
U. States, 2 W. W. Young
Denmark, 60 Elkan & Co.
Belgium, 600 L. J. Levinstein & Sons
Holland, 11 R. Baelz & Co.

**Indigo**
E. Indies, 35 chts. 1 bx. L. & I. D. Jt. Co.
Belgium, 32 cs. Leach & Co.

**Myrabolams**
E. Indies, 809 pkgs. Marshall & French
" 667 Boutcher, Mortimore, & Co.
" 400 Arbuthnot, Ewart, & Co.
" 4,682 W. Shelcott
" 300 Leach & Co.

**Orchella**
Belgium, 63 pkgs. Leach & Co.

**Saffron**
Spain, 1 pkg. Price, Hickman & Co.

**Sumac**
Italy, 300 pkgs. Beresford & Co.
" 100 L. & N. W. R. Co.
" 400 J. Kitchin, Ltd.
" 100 F. Roberts
" 100 W. Shelcott
" 100 Skilbeck Bros.
" 270 Bailey & Leetham
France, 50 B. & F. Wf. Co., Ltd.

**Tanners' Bark**
Natal, 102 t. A. & W. Nesbitt

U. States, 33 Park, Macfadyen, & Co.
Jamaica, 38
Natal, 3 " T. Bates
Adelaide, 76 Devitt & Hett

**Turmeric**
Belgium, 87 pkgs. Leach & Co.
E. Indies, 100 Elkan & Co.

**Dyestuffs** (*otherwise undescribed*)
U. States, 4 pkgs. W. W. Young

**Farina—**
Germany, 100 pkgs. Ohlenschlager Bros.
" 100 H. Lorenz
Holland, 100 Humphrey & Co.
" 50 J. Knill & Co.

**French Chalk—**
Austria, £45 W. Harrison & Co.

**Glucose—**
U. States, 525 pkgs. 1,191 c. R. G. Hall & Co.
" 250 250 c. Fellows, Morton, & Co.
" 50 275 Prop. Chmbln.'s Wf.
" 25 152 W. Balchin
" 625 737 L. & I. D. Jt. Co.
" 30 180 Page, Son, & East
France, 200 200 J. Barber & Co.
" 400 400 Trier, Meyer, & Co.

**Glycerine—**
Holland, £450 J. Owen
" 280 Spies Bros. & Co.
Germany, 121 Beresford & Co.

**Guano—**
Holland, 1 t. J. Owen

**Iron Oxide—**
Austria, 15 cks. Lake & Williams
" 16 brls. M. D. Co.

**Lead Acetate—**
Germany, 31 pkgs. W. Caudery & Co.
" 25 T. Palmer
" 8 Petri Bros.
" 1 Andorsen, Becker, & Co.

**Manganese Sulphate—**
Germany, 2 pkgs. Petri Bros.

**Manure—**
Tampa, 900 t. A. Hunter & Co.
Germany, 10 Anderson, Weber, & Smith

**Methyl Alcohol—**
Belgium, 2 drs. Hernu, Peron, & Co.
Holland, 1 ck. Stein Bros.

**Ochre—**
France, 8 cks. O'Hara & Hoar
" 47 W. Harrison & Co.
" 17 pkgs. Page, Son, & East
Holland, 1 7 10 cs. Phillipps & Graves
France, 3 Stobbs, Wilson, & Co.
Belgium, 15 Hernu, Peron, & Co.
France, 14 Brougham Young

**Orpiment—**
Austria, 3 pkgs. Schenker & Co.

**Painters' Colours—**
Holland, 3 pkgs. J. Owen
France, 14 Flageollet & Co.
U. States, 20 H. & G. Dutfield
" 10 J. Kidd & Co.
" 9 Beck & Pollitzer
Belgium, 8 12 cks. Magee, Taylor, & Co.
Holland, 9 R. Baelz & Co.
Germany, 32 T. Hamilton
" 2 1 L. & I. D. Jt. Co.
" 10 C. S. Lovell
" 1 Phillipps & Graves
" 14 T. H. Lee
" 2 H. Lambert
Belgium, 1 cs. T. Palmer

**Paraffin Wax—**
U. States, 63 brls. Mordaunt Bros.
" 100 C. H. Wall
" 85 Williams, Torrey & Co.,

**Phosphate Rock—**
France, 30 t. Weatherley, Mead, & Co.
W. Indies, 500 Forbes, Abbott, & Co.
U. States, 942 A. Hunter & Co.

**Phosphoric Acid—**
Germany, 18 pkgs. Phillipps & Graves

**Pitch—**
France, 50 brls. Poth, Hille & Co.
Germany, 48 C. B. Leighton

**Plumbago—**
Germany, 60 cs. Prop. Scott's Wf.
" 87 cks. B. Gallaway
Holland, 25 "

**Potash—**
France, 20 pkgs. Bennett S. S. Co.

**Potassium Carbonate—**
Holland, 2 cks. Spies Bros. & Co.

**Potassium Prussiate—**
Germany, 9 pkgs. A. & M. Zimmermann

**Potassium Sulphate—**
France, 250 pkgs. F. W. Berk & Co., Ltd.

**Rosin—**
U. States, 3,747 brls. G. Nutter & Co.
" 3,000 Fairclough, Dodd, & Co.

**Saltpetre—**
Germany, 51 cks. P. Hecker & Co.
" 20 Craven & Co.
" 58 B. & F. Wf. Co., Ltd.
" 70 T. Merry & Son
" 20 Baiss Bros. & Co.
E. Indies, 423 bgs. L. & I. D. Jt. Co.
" 1,676 Ralli Bros.

**Soda—**
Germany, 50 c. A. & M. Zimmermann

**Sodium Acetate—**
France, 35 pkgs. S. F. Waters & Co.
" 70 T. Palmer

**Sodium Bicarbonate—**
Holland, 15 pkgs. A. & M. Zimmermann

**Sodium Bichromate—**
Belgium, 4 pkgs. Kraver, Back, & Co.

**Stearine—**
U. States, 60 pkgs. W. Balchin
Holland, 100 bgs. H. Hill & Sons
France, 149 Beresford & Co.
" 100 H. Hill & Sons

**Sulphur—**
Italy, 9 t. C. J. Capes & Co.
" 30 G. Boor & Co.
" 18 Pillow, Jones, & Co.
" 16 J. Kitchin, Ltd.
" 8 T. T. Creed

**Talc—**
E. Indies, £580 W. M. Smith & Sons

**Tallow—**
N. Zealand, 36 cks. J. Morrison & Co.
U. States, 14 Tingle, Jacobs, & Co.
" 56 H. Hehl
Sydney, 43 Horne & Co.
" 10 Leach & Co.
France, 2 Mory & Co.
Germany, 58 C. B. Leighton
N. Zealand, 34 Hoare, Wilson, & Co.
" 33 N. Z. L. & M. A. Co.
Germany, 23 Goad, Rigg, & Co.
Adelaide, 188 Anning & Cobb
Sydney, 89 L. & I. Dk. Co.
Germany, 11 pkgs. "

**Tar—**
Germany, 50 brls. Linck, Moeller, & Co.

**Tartaric Acid—**
Holland, 19 pkgs. Middleton & Co.
" 12 B. & F. Wf. Co., Ltd.

**Turpene—**
Germany, 7 pkgs. F. Stahlschmidt & Co.

**Ultramarine—**
Holland, 16 cks. Haeffner, Hilpert, & Co.
Belgium, 30 cs. Forwood Bros. & Co.
Holland, 3 Phillipps & Graves
" 13 pkgs. Hernu, Peron, & Co.

**Varnish—**
Belgium, 1 pkge. Stobbs, Wilson & Co.
" 2 T. Palmer

**Vermilion—**
Germany, 6 pkgs. Phillipps & Graves
" 1 ck. A. Loewenstein

**White Lead—**
Germany, 20 cks. Magee, Taylor & Co.
" 43 Colthurst & Harding
France, 73 pkgs. J. A. Drew
Holland, 9 T. T. Creed
" 18 Blundell, Spence & Co.

**Zinc Oxide—**
Holland, 50 brls. M. Ashby, Ld
Germany, 70 cks. J. Matton
" 72 brls. M. Ashby, Ld.
Austria, 16 Gabain Bros.

## LIVERPOOL.

*Week ending June 16th.*

**Acetic Acid—**
Rotterdam, 10 botls. 2 cks.

**Ammonia—**
New York, 30 carboys.
Rotterdam, 1 ck.

**Barytes—**
Rotterdam, 33 cks.

**Caoutchouc—**
Hamburg, 9 cks.

**Carbolic Acid—**
Rotterdam, 50 cks.

**Carbonic Acid Gas—**
Rotterdam, 25 tubes.

**Colours—**
Antwerp, 12 brls. J. T. Fletcher & Co.
Rotterdam, 7 42 cks. 29 cs.

**Cream of Tartar—**
Barcelona, 10 cks. 3 pps.
Marseilles, 6
Rotterdam, 8

**Dyestuffs—**

**Annatto**
Bordeaux, 23 cks.

**Argols**
Oporto, 23 cks. German Bank of London

**Cutch**
Rangoon, 1,831 bxs.

**Extracts**
Bordeaux, 25 cks.
Marseilles, 70 brls.
Antwerp, 10

**Fustic**
Colon. 1,122 ps.

**Gambier**
Singapore, 1,295 brls.

**Madder**
Rotterdam, 1 ck.

**Myrabolams**
Calcutta, 110 bgs. 1,988 pkts
Bombay, 890 D. Sassoon & Co.
" 3,335

**Sumac**
Port Said, 450 bgs.

**Turmeric**
Calcutta, 250 bgs. Ralli Bros.
Bombay, 169 Aldridge, Salmon & Co.

**Glucose—**
New York, 130 brls.

**Glycerine—**
Havre, 50 cs. The Cunard S. S. Co., Ld.
Marseilles, 3 dms. R. Schloesser & Co.
Valencia, 50 Inman & Inter. S. S. Co., Ltd.
Rotterdam, 5 tcs.
Amsterdam, 10 carboys.

**Lead Acetate—**
Rotterdam, 39 cks.

**Nitrate—**
Rotterdam, 8 cks.

**Ochre—**
Marseilles, 178 cks 17 brls.
Bordeaux, 46
Rouen, 20 Co-op. W'sale Society, Ld.

**Paint—**
Boston, 1 brl.

**Phosphate—**
St Valery, 550 t.

**Phosphate Rock—**
Port Royal, 3,481 t. J. Adyer
Coosaw, 2,000

**Pitch—**
Marseilles, 86 brls.
Amsterdam, 28 cks.

**Potash—**
Rouen, 133 cks. Co-op. W'sale Society, Ld.
Hamburg, 10
Dunkirk, 37 19 dms.

**Pyrites—**
Huelva, 1,742 t. Tennants & Co.
" 2,396 Matheson & Co.

**Rosin—**
New York, 500 brls.
Savannah, 3,136
Baltimore, 2,000

**Saltpetre—**
Karachi, 164 bs.
Calcutta, 606 bgs.

**Soap—**
Marseilles, 508 cs.
" 10 J. Woolley, Sons & Co.
" 1 J. Brooks
Rotterdam, 5
New York, 50 bxs. E. Thompson

**Soapstone—**
Bordeaux, 276 bgs. G. G. Blackwell

**Sulphur—**
Huelva, 1,085 t. Matheson & Co.

**Tallow—**
New York, 140 tcs. T. M'Marc & Co.
" 125 hds.
San Nicolas, 200½ pps.
Buenos Ayres, 428
Boston, 267 163 brls.
Frey Bentos, 192 687 pps.
Boston, 50 brls. J. Mackee & Co.
Philadelphia, 71 hds.

**Tar—**
Rouen, 2 cks. Co-op. W'sale Society, Ld.

**Tartar—**
Bordeaux, 7 cks.

**Tartaric Acid—**
Marseilles, 16 brls.
Rotterdam, 16 cks.

**Tincal—**
Calcutta, 217 bgs.

**Ultramarine—**
Rotterdam, 3 cks. 14 cs.

**Verdigris—**
Bordeaux, 5 cks.
Marseilles, 20 brls. A. Klepstein

**Waste Salt—**
Hamburg, 140 t.

**White Lead—**
Antwerp, 2 brls. J. T. Fletcher & Co.
Rotterdam, 93 cks.
Ghent, 14

**Zinc Ashes—**
Marseilles, 51 brls.

**Zinc Oxide—**
Antwerp, 60 brls. J. F. Fletcher & Co.
" 120
Rotterdam, 75 cks.

**Zinc White—**
Rotterdam, 45 cks. O. & H. Marcus

## HULL.

*Week ending June 18th.*

**Alum—**
Hamburg, 26 cks. Bailey & Leetham

**Barytes—**
Riga, 261 cks. Wilson, Sons & Co., Ltd.
Bremen, 23 H. F. Pudsey
Rotterdam, 23 W. & C. L. Ringrose

**Chemicals** (*otherwise undescribed.*)
Bremen, 2 cs. Veltmann & Co.
" 1 Wilson, Sons & Co., Ltd.
Antwerp, 75 pks. " "
Dunkirk, 28 cks. 81 dms. " "

**Colours—**
Rotterdam, 2 cks. 23 pks. G. Lawson & Sons
" 27 2 cs. Hutchinson & Son
" 11 2 44 pks. W. & C. L. Ringrose
Amsterdam, 4 " "
Bremen, 2 Veltmann & Co.
" 8 G. Malcolm & Son
Danzig, 15 Wilson, Sons & Co., Ltd.
" 10
Stettin, 90 " "
Flushing, 116 20 pks 1 cs. Zeeland S. S. Co.
Antwerp, 6 11 brls. Wilson, Sons, & Co., Ltd.
" 73
Rotterdam, 11 2 cs. 44 pks. 9 pkgs. W. & C. L. Ringrose
" 2 pkgs.

**Dried Blood—**
St. Petersburg, 1,388 bgs. Wilson, Sons & Co., Ltd.

**Dyestuffs—**

**Alizarine**
Rotterdam, 4 brls. G. Lawson & Sons
" 1 ck. W. & C. L. Ringrose
" 7 pkgs.

**Madder**
Rotterdam, 2 cks. J. Pyefinch & Co.

**Myrabolams**
Hamburg, 446 pkts. G. Lawson & Sons

**Sumac**
Palermo, 885 bgs. Wilson, Sons & Co., Ltd
" 550

**Dyestuffs** (*otherwise undescribed*)
Boston, 20 bxs. Wilson, Son & Co., Ltd.

**Farina**—
Harlingen, 50 bgs.
Stettin, 200 Wilson, Sons & Co., Ltd.
" 50

**Glycerine**—
Amsterdam, 10 pks. W. & C. L. Ringrose

**Lead Acetate**—
Stettin, 31 cks. Wilson, Sons & Co., Ltd.

**Manganese**—
Hamburg, 1 ck. C. M. Lofthouse & Co.

**Naphtha**—
Rotterdam, 2 dms. G. Lawson & Sons

**Ochre**—
Hamburg, 9 cks. Wilson, Sons & Co., Ltd.

**Paint**—
Boston, 139 cs. Wilson, Sons & Co., Ltd.
New York, 52 " "

**Phosphate Rock**—
Taurpa, 850 t. Hammond, Emes, & Co.

**Phosphorus**—
Hamburg, 133 cs. Bailey & Leetham

**Pitch**—
Amsterdam, 13 cks. H. F. Pudsey

**Potash**—
Rotterdam, 10 cks. G. Lawson & Sons
" 7 G. Holmes & Co.

**Pyrites**—
Huelva, 715 t. J. Dalton, Holmes & Co.

**Rosin**—
Bordeaux, 3 cks.
Hamburg, 1 cs. Wilson, Sons & Co., Ltd.

**Soap**—
Bari, 68 cs. Wilson, Sons & Co., Ltd.

**Sodium Nitrate**—
Rotterdam, 8 cks. Hutchinson & Son

**Stearine**—
Flushing, 9 cks. Zeeland S. S. Co.
Antwerp, 178 bgs. Wilson, Sons & Co., Ltd.

**Tallow**—
Boston, 90 brls. Wilson, Sons & Co., Ltd.
New York, 200 hds. 170 trcs. " "

**Tartar**—
Bordeaux, 2 cks. Rawson & Robinson

**Tartaric Acid**—
Rotterdam, 9 cks. G. Lawson & Sons
" 2 W. & C. L. Ringrose

**Ultramarine**—
Rotterdam, 2 cks. Todd & Son

**White Lead**—
Rotterdam, 22 cks. Sissons, Bros. & Co.
" 12
Antwerp, 75 Bailey & Leetham
Rotterdam, 20 W. & C. L. Ringrose
" 25 Tudor & Sons
" 9 T. F. Chambers & Co.

**Zinc Oxide**—
Rotterdam, 10 cks.

## GLASGOW.

*Week ending June 23rd.*

**Barytes**—
Rotterdam, 69 bls.
" 24 cks. J. Rankine & Son

**Barytes Sulphate**—
Ghent, 63 cks.

**Bleaching Powder**—
New York, 200 css.

**Colours**—
Rotterdam, 12 cks. 1 cs. 2 brls. 1 bx. J. Rankine & Son
" 30 G. & J. Boyd
Hamburg, 2

**Cream of Tartar**—
Rotterdam, 5 cks. J. Rankine & Son
Marseilles, 5 11 brls.

**Dyestuffs**—
**Alizarine**
Rotterdam, 50 bls.
" 1 J. Rankine & Son

**Extracts**
Marseilles, 25 brls.
Fiume, 100 G. Dickson

**Glucose**—
New York, 199 brls.

**Glycerine**—
Rotterdam, 5 dms. J. Rankine & Son

**Manganese**—
Rotterdam, 6 cks. J. Rankine & Son

**Ochre**—
Rouen, 110 cks.

**Paint**—
New York, 1 brl.

**Pitch**—
Ghent, 29 cks.

**Potash**—
Hamburg, 44 cks.

**Rosin**—
New York, 500 brls.

**Soap**—
Marseilles, 95 bxs. 115 cs

**Sodium Acetate**—
Ghent, 19 cks.
Rouen, 7

**Sodium Nitrate**—
Caleta Buena, 1,166 t. 1 c.

**Sodium Silicate**—
Rotterdam, 33 cks. J. Rankine & Son

**Sulphur**—
Seville, 980 t. Seville Sulphur & Copper Co.

**Tallow**—
New York, 120 trcs.

**White Lead**—
Rotterdam, 63 cks.
" 11 J. Rankine & Son

**Zinc Ashes**—
Ghent, 1 ck.

**Zinc Oxide**—
New York, 20 brls.
Ghent, 75 cks.
Rotterdam, 5 J. Rankine & Son

## TYNE.

*Week ending June 18th.*

**Antimony**—
Hamburg, 1 cs. Tyne S. S. Co.

**Barytes**—
Antwerp, 73 cks. Tyne S. S Co.

**Colours**—
Rotterdam, 12 cks. Tyne S
Hamburg, 4 "

**Glycerine**—
Rotterdam, 5 cs. Tyne S

**Manganese**—
Rotterdam, 5 cs. Tyne S

**Phosphate Rock**—
Antwerp, 310 t. Langdal

**Salt**—
Hamburg, 280 t. Clephans &

**Saltpetre**—
Hamburg, 4 cks. Tyne S

**Soap**—
Rotterdam, 2 cs. Tyne S

**Sulphur**—
Pomaron, 991 t. A. P. E

## GOOLE.

*Week ending June 2nd.*

**Alum**—
Rotterdam, 14 cks.

**Caoutchouc**—
Boulogne, 5 cks.

**Caustic Potash**—
Calais, 21 drs.

**Dyestuffs**—
**Extracts**
Ghent, 100 cks.
**Tanning Extract**
Ghent, 125 cks.

**Dyestuffs** (*otherwise undescri*
Boulogne, 42 cks. 10 cs. 28

**Phosphate**—
Ghent, 816 bgs.

**Waste Salt**—
Hamburg, 493 t.

## GRIMSBY.

*Week ending June 6th.*

**Ammonia**—
Antwerp, 25 pkgs.

**Chemicals** (*otherwise undescri*
Antwerp, 3 cks
Hamburg, 4 pkgs.
Rotterdam, 1

**Dyestuffs** (*otherwise undescri*
Dieppe, 16 pkgs.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Period ending June 22nd.*

**Acetic Acid**—
Calcutta, 2 cs. £1
Canterbury, 25 46

**Acids**—
Fremantle, 57 cs. £46
Cologne, 445 botts. 468

**Alum**—
Buenos Ayres, 5 cks. £15

**Aluminous Cake**—
Melbourne, 10 t. 16 c. £28

**Ammonia**—
Buenos Ayres, 10 drs. £200
M. Video, 5 cs. 15
Shanghai, 10 c. 250
Natal, 1 t. 9 39
Dusseldorf, 3 19
Rotterdam, 9 61
Hong Kong, 6 86

**Ammonia and Acids**—
Hamburg, 4 cs. £17

**Ammonia Salts**—
Algoa Bay, 34 cks. £292

**Ammonium Carbonate**—
Dunkirk, 18 c. £25
Lyttleton, 1 t. 34
Bordeaux, 10 cks. 37
Calcutta, 1 4

**Ammonium Chloride**—
Stettin, 3 cks. £17
Martinique, 24 t. 15 c. 400
Gothenburg, 1 34
Seville, 2 19
Batoum, 1 10 48

**Ammonium Nitrate**—
Algoa Bay, 2 t. 12 c. £154

**Ammonium Sulphate**—
Malaga, 31 t. 12 c. £316
Rouen, 19 18 205
Barbadoes, 25 10 270
Philadelphia, 15 8 155
Hamburg, 10 3 112
Motril, 252 15 2,528

**Amorphous Phosphorus**—
Hiogo, 30 cs. £294

**Arsenic**—
Brisbane, 1 t. 1 c. £13
Wellington, 1 5 18
Napier, 2 29

**Benzoic Acid**—
Philadelphia, 1 cs. £7

**Bleaching Powder**—
Melbourne, 2 t. £27

**Borax**—
Melbourne, 1 t. £31
Hanover, 9 c. 23
Natal, 3 5

**Boric Acid**—
B. Ayres, 7 cks. £29

**Brewers Chemicals**—
Auckland, 5 c. £61

**Calcined Magnesia**—
Seville, 1 t. £70

**Calcium Chloride**—
Natal, 1 t. £4

**Carbolic Acid**—
Mauritius, 6 pkgs. £17
Paris, 10 cks. 16
Yokohama, 2 t. 5 c. 98
Dunedin, 6 25
Montreal, 3 cs. 16
B. Ayres, 2 9

**Caustic Soda**—
Lyttleton, 12 t. 15 c. £150
Archangel, 10 14 123
Algoa Bay, 13 25
Wellington, 11 120
Napier, 5 7 64
Auckland, 5 5 52
" 5 54
Dunedin, 10 12 139
E. London, 4 30

**Chemicals** (*otherwise undescribed*)
New York, 12 pkgs. £47
Natal, 20 cs. 15
Boston, 1 t. 15 c. 24
Geraldton, 2 74
Calcutta, 4 10
Brisbane, 8 cks. 5 kgs. 49
Melbourne, 9 cs.
Wellington, 5 20 drs.
Dunedin, 8

**Chloride of Lime**—
Penang, 3 t.

**Citric Acid**—
Genoa, 5 c.
Hamburg, 6 21 kg
Brussels, 5
Halifax, 1
Sydney, 1 t. 3
Odessa, 12
Libau, 10
Wellington, 2 cs.
Rotterdam, 10
Hamburg, 1 ck.
St. Petersburg, 3 10
Moscow, 1
B. Ayres, 1
Batoum, 6
Santander, 10

**Coal Products**—
**Alizarine**
Boston, 75 cks.
**Aniline**
Sydney, 3 cs.
Philadelphia, 11 kgs.
Melbourne, 1
New York, 20 drs.
**Aniline Oil**
Rotterdam, 23 drms.
**Aniline Salts**
Venice, 5 rnlts.

**Anthracene**
Rotterdam, 630 cks. £2,316
Dusseldorf, 464 2,821
Cologne, 105 585

**Benzol**
Philadelphia, 20 drs. £252
Rotterdam, 40 17 cks. 933
Calais, 12 258

**Coal Tar Dyes**
Mauritius, 1 cs. £12
Calcutta, 1 24
Boston, 2 cks. 27

**Coal Tar Extracts**
Dunkirk, 2 drs. £10

**Creosote**
Philadelphia, 3 cs. £32
Halifax, 15 brls. 9
Hamburg, 26 cks. 10
Dieppe, 23,000 glns. 120
Boulogne, 1 cs. 11
Huelva, 2,750 1,306

**Creosote Oil**
Troport, 15 brls. £40

**Naphtha**
Adelaide, 176 drs. £80
Sydney, 30 82
Calais, 26 cks. 60

**Naphthalene**
New York, 148 bgs. £107
Montreal, 9 cks. 14
Antwerp, 53 63
Troport, 99 pkgs. 91
Amsterdam, 47 83
Hamburg, 177 33 247

**Nitro-Naphthalene**
Genoa, 4 cks. £25
Cologne, 5 43
Barcelona, 3 13

**Paraffin Wax**
Auckland, 3 tanks £157

**Pitch**
Catania, 50 brls. £14
Dunkirk, 532 t. 801
New York, 1,500 cks. 778
Troport, 32 120
Galatz, 50 16
Baltimore, 1,143 bgs. 250
Boston, 200 113
Gijon, 896 t, 1,478
Melbourne, 25 18
Boca, 20 17
Salonica, 190 72
Tenenzen, 521 860
St. John's, N.F., 225 75
Adelaide, 85 pkgs. 31
Hamburg, 2 13

**Tar**
New York, 250 cks. £143
Boston, 15 8
Natal, 80 pkgs. 500 drs. 56
Adelaide, 38 51
Malmo, 100 brls. 48
Melbourne, 6 6
Sydney, 20 21
E. London, 200 8
Newcastle, 100 24
San Francisco, 200 200
Archangel, 30 rnlts. 17
St. John's, N.F., 25 15

**Tar Oil**
Paris, 40 cks. £180

**Coal Products** (*otherwise undesc'd.*)
Newcastle, 40 brls. £40
Sydney, 200 drs. 41

**Copper Sulphate**—
Genoa, 25 t. £366
Invercargill, 1 11 c. 23
Troport, 15 13 230
Huelva, 18 15
Batoum, 10 153
Wellington, 10 8
Constantinople, 2 10 37
Bordeaux, 39 10 632

**Corrosive Sublimate**—
B. Ayres, 4 kgs. £43

**Cream of Tartar**—
Invercargill, 12 c. £45
Brisbane, 2 t. 200
Melbourne, 10 kgs. 90
Sydney, 4 3 361
Wanganui, 5 24
Wellington, 1 2 99
E. London, 4 cs. 30

**Disinfectants**—
Brisbane, 4 cs. £10
Shanghai, 3 6 pkgs. 26
Algoa Bay, 6 17
New York, 8 cks. 22
Calcutta, 15 drs. 15
Madras, 49 50
Brisbane, 15 35
Sydney, 54 216
Berbice, 31 28

**Flowers of Sulphur**—
E. London, 50 pkgs. £32

**Fluoric Acid**—
Algoa Bay, 2 c. £15

**Guano**—
Trinidad, 5 t. £58
Dominica, 4 40
Adria, 101 6 c. 812

**Hypophosphite of Lime**—
Philadelphia, 20 cs. £271

**Magnesium Carbonate**—
Seville, 1 t. 5 c. £50

**Manure**—
Demerara, 12 t. £125
Havre, 13 8 c. 180
Auckland, 60 275
Sydney, 3 9 75
Cullera, 691 5,468
Surinham, 2 5 34
Barbadoes, 235 2,422
Demerara, 50 550
Gandia, 150 1,500
Malaga, 7 8 74
Morlaix, 128 1,080
Penang, 5 13 80
Hamburg, 30 300
Riga, 267 10 710

**Manure Salts**—
Sydney, 4 t. 4 c. £275

**Mirbane**—
Hamburg, 10 cs. £39
Paris, 5 dms. 9

**Muriatic Acid**—
Singapore, 8 cs. £10

**Oxalic Acid**—
Seville, 1 ck. £9
Antwerp, 19 c. 25

**Phosphate**—
Demerara, 35 t. £90

**Phosphorus**—
Lisbon, 4 cs. £50
Barbadoes, 1 c. 10

**Potash Crystals**—
Toronto, 10 c. 37
Melbourne, 11 pkgs. 35

**Potassium Bicarbonate**—
Philadelphia, 2 t. 4 c. £63

**Potassium Chlorate**—
St. Petersburg, 10 kgs. £31
B. Ayres, 10 31

**Potassium Cyanide**—
Shanghai, 14 c. £14
Townsville, 3 cs. 15

**Pyrogallic Acid**—
Shanghai, 2 c. £9

**Saltpetre**—
Natal, 10 c. £12
Oporto, 4 t. 1 82
Sydney. 1 22
Ghent, 2 43
Wanganni, 1 t. 22
Wellington, 10 11
Newcastle, 10 11

**Sheep Dip**—
Algoa Bay, 25 cs. £70
Konigsberg, 17 c. 41
Sydney, 500 1,500
Bahia Blanca, 500 1,500
E. London, 1,052 drs. 336
Cape Town, 25 67
Natal, 223 pkgs. 61
Napier, 4 10
Galveston, 2,200 3,300

**Soda**—
Calcutta, 4 c. £14
Auckland, 1 t. 2 10

**Soda Ash**—
Sydney, 10 t. 2 c. £71
Wellington, 1 6
Auckland, 4 24

**Soda Crystals**—
Fremantle, 4 t. 13 c. £18
Natal, 4 19 19
Invercargill, 10 2
Hong Kong, 1 4
Cape Town, 3 5 12
Natal, 6 12 25
Oporto, 5 1 18
Sydney, 1 9

**Sodium Bicarbonate**—
Natal, 13 c. £5
Singapore, 3 6
Invercargill, 1 t. 3 8
Mossel Bay, 6 5
Trinidad, 12 5
Geraldton, 4 7 26
Wellington, 2 11
Christchurch, 2 4 23
Napier, 1 8
Auckland, 1 8

**Sodium Carbonate**—
Natal, 5 c. £10
Algoa Bay, 11 9

**Sodium Silicate**—
Wellington, 3 t. 1 c. £16
Dunedin, 5 26
Auckland, 5 25

**Strontium Nitrate**—
New York, 30 brls. £139

**Sulphate of Soda and Borax**—
B. Ayres, 16 cks. £50

**Sulphur**—
Mossel Bay, 17 t. 17 c. £229
Aden, 3 25
E. London, 495 pkgs. 320

**Sulphuric Acid**—
Natal, 1 t. £20
Geraldton, 60 cs. 42
Christchurch, 10 dms. 14
E. London, 25 17

**Superphosphate**—
Lyttleton, 198 t. 4 c. £706

**Tartaric Acid**—
Invercargill, 3 c. £11
St. Petersburg, 10 cks. 323
Hamburg, 2 12
Brisbane, 1 t. 4 151
Lisbon, 6 35
Lyttleton, 2 74
Wellington, 13 72
E. London, 1 cs. 13
Wanganni, 5 28
Sydney, 1 6 138
B. Ayres, 7 143
Cape Town, 2 13

## LIVERPOOL.

*Period ending June 22nd.*

**Acetic Acid**—
Vera Cruz, 4 t. 5 c. £90

**Alum**—
Vigo, 1 t. 3 c. 1 q. £6
Toronto, 5 27
Syra, 4 10 26
Santos, 1 5
Galatz, 2 15 14
Montreal, 5 27
Melbourne, 5 1 26
St. John's, N.B., 1 6 8
Ancona, 2 10 15
Bilbao, 5 30
Piræus, 3 18
Dunedin, 5 30
Seville, 5 25
Malaga, 38 brls. 45

**Alum Cake**—
Melbourne, 5 t. 2 c. £15
Calcutta, 10 1 3 q. 30

**Aluminous Cake**—
Calcutta, 13 t. 9 c. £47

**Ammonia**—
Palermo, 8 c. 3 q. £48

**Ammonium Carbonate**—
Stockholm, 6 c. 1 q. £5
Antwerp, 1 t. 30
Vigo, 9 2 14
Oporto, 1 28
Bordeaux, 6 1 9
Genoa, 2 10 82

**Ammonium Chloride**
Constantinople, 1 t. £35
Philadelphia, 29 17 c. 3 q. 701
Montreal, 5 8
Naples, 2 10 87
Leghorn, 15 26
New York, 5 1 124
Hamburg, 13 24
Alexandria, 3 2 102
Bombay, 5 14 192
Trieste, 1 17 56
Monte Video, 1 2 37

**Ammonium Sulphate**—
Las Palmas, 50 t. 3 c. £552
New York, 50 8 514
Malaga, 151 2 2 q. 1,560
N. Orleans, 50 14 3 507
G. Canary, 52 13 2 550
Bordeaux, 5 2 3 53
Valencia, 129 12 1,411
Demerara, 81 14 857
Valencia, 170 2 1,816

**Barytes**—
Syra, 5 cks. £8

**Bleaching Powder**—
Bombay, 8 cks. 10 cs.
Boston, 626 102
Calcutta, 197
Genoa, 33
Lisbon, 33
M. Video, 10 pkgs.
Montreal, 16
Naples, 10
New York, 570 20 bxs. 100 brls.
Oporto, 30 16
Palermo, 10
Philadelphia, 154
San Sebastian, 90
Trieste, 8
Vera Cruz, 50
Constantinople, 95 34
Dunkirk, 17
Ghent, 101
New Orleans, 18
Vigo, 3

**Borate of Lime**—
Bremerhaven, 14 t. 15 c. 2 q. £192

**Borax**—
Nantes, 1 t. 2 c. £30
Ponce, 5 6
Lisbon, 1 1 q. 30
Antwerp, 7 7 1 219
Sourabaya, 5 9
Vera Cruz, 9 14
Hamburg, 10 8 2 302
Havana, 2 16 81
St. John's, N.B., 19 3 29
Amsterdam, 1 30
Rotterdam, 1 18 2 57

**Calcium Chloride**—
New York, 20 t. 2 c. £43
Boston, 10 1 21

**Carbolic Acid**—
Hiogo, 16 c. £35
Genoa, 1 t. 4 51
Antwerp, 12 23
Calcutta, 1 26
Hamburg, 5 2 60
Rotterdam, 18 821

**Caustic Potash**—
New York, 1 t 12 c. £35
B. Ayres, 17 3 q. 24

**Caustic Soda**—
Adelaide, 86 dms.
Alexandria, 100
Algoa Bay, 10 bxs.
Alicante, 48 40 brls.
Amsterdam, 202 110 kgs
Baltimore, 135
Barcelona, 30 cks. 520 70 100
Bilbao, 292 81
Bombay, 8
Boston, 100
Buenos Ayres, 50
Calcutta, 229
Dunedin, 18
Genoa, 96
Gijon, 30
Hiogo, 335
Lisbon, 27
Leghorn, 154
Madeira, 10
Madrid, 25 25
Malaga, 276 29
Matanzas, 65
Melbourne, 36
Messina, 35
Montreal, 400
Nantes, 35
Naples, 10
N. York, 15 bxs. 1,325 340 50
Oporto, 108
Pasages. 60
Rangoon, 7
Rotterdam, 35
Rouen, 34
Sagua la Grande, 10
St. John's, Nfld., 75
St. Petersburg, 534
San Francisco, 100
San Sebastian, 242
Santa Catherina, 50
Seville, 20 cks. 1,420 105 50
Singapore, 40
Stockholm, 20 cks.
Sydney, 183
Talcahuano, 35
Tampico, 165
Tarragona, 30 10
Valencia, 153
Valparaiso, 110
Vigo, 15
Wellington, 36
Yokohama, 150
Acajutla, 20
Bahia, 17
Boca, 6
Carril, 14 8
Corinto, 30
Dunedin Wf., N.Z., 18
Galatz, 14 100
Malta, 20
M. Video, 50
New Orleans, 100
Puerto Cabello, 8
Quebec, 50
Rio de Janeiro, 20
Santander, 53 39 cks.
Trinidad, 500
Yokohama, 275

**Chemicals** (*otherwise undescribed*)
Trieste, 1 t. £34
Samoun, 3 c. 5
Alexandria, 5 18 188
Beyrout, 16 25
Ibrail, 9 3 q. 15
Leghorn, 2 1 1 67
Hamburg, 2 88

**Citric Acid**—
Bilbao, 5 c. £42
Alexandria, 2 16

**Cobalt Oxide**—
Gijon, 1 cs. £45

**Copperas**—
Syra, 4 t. 15 c. £10
Larnaca, 1 9 3
Alexandria, 3 5 6

**Copper Sulphate**—
Tarragona, 10 t. £155
Seville, 1 18 c. 29
Trieste, 5 1 75
Monte Video, 3 12 54
Alexandria, 1 q. 15
Venice, 3 1 3 46
Rotterdam, 9 19 1 138
Rouen, 145 17 3 2,229
Rio Grande, 5 4
Ghent, 49 15 1 770
Batoum, 4 19 2 77
Hamburg, 19 19 309
Malaga, 10 1 8
Bordeaux, 155 10 1 2,421
Barcelona, 28 18 3 418
Antwerp, 15 4 1 232
Rio de Janeiro, 1 15 1 27
Odessa, 15 2 228

**Cream of Tartar**—
Miramichi, 2 c. £10
St. John's, Nfld., 6 2 q. 22
Vera Cruz, 2 10
Boston, 1 ck. 73

**Disinfectants**—
Santos, 4 cs. £8
Valparaiso, 8 c. 30
Rangoon, 2 8
Rouen, 1 t. 4 8

**Dried Blood**—
Las Palmas, 9 t. 19 c. 2 q. £73

**Flowers of Sulphur**—
Corunna, 1 t. 1 q. £9
Lisbon, 3 13 c. 2 34

**Glycerine**—
San Francisco, 20 drs. £348
Hamburg, 4 t. 19 c. 127
St. John's, Nfld., 4 11
New York, 47 1 1,131
Rotterdam, 16 12 339

**Guano**—
Malaga, 20 t. 190

**Gypsum**—
New York, 82 t. 10 c. £293

**Iron Chloride**—
Bordeaux, 8 t. £31

**Lead Acetate**—
Piræus, 9 c. £10

**Manganese**—
Antwerp, 50 t.
Baltimore, 24

**Magnesia**—
Antwerp, 4 boxs. 2 cs.
Mollendo, 1

**Magnesium Sulphate**
Loanda, 60 bgs.

**Manure**—
Valencia, 58 t. 11 c. 2 q £170
Arucas, 20 46
Las Palmas, 20 68

**Oxalic Acid**—
Seville, 9 c. £13

**Paint**—
Bilbao, 29 dms. 2 bxs.
Brass, 3 brls.
Callao, 5 cs. 18 cks. 20 kgs.
Coronel, 16 20
Havana, 33 25
Loanda, 3
Manaos, 27
Manilla, 300
Montreal, 2 brls.
Mossamedes, 18 dms.
Oporto, 15 cks.
Para, 10 60 10
Pernambuco, 10
Philadelphia, 34
Ponce, 9
Porto Alegre, 60 25
Principe, 12
Rio de Janeiro, 6
Rouen, 10
St. John's, Nfld., 6 34
St. Michael's, 54
St. Petersburg, 34
San Juan, 45 600
San Sebastian, 2 cs.
Seville, 15
Sierra Leone, 138
Stockholm, 1 bx.
Talcahuano, 14
Vera Cruz, 2
Alexandria, 16 cans. 80
Bahia, 5
Barcelona, 1 bx.
Calcutta, 40 dms.
G. Canary, 11
Hamburg, 4 cs. 9 11
Humacao, 1
Leghorn, 36
Lisbon, 2
Malaga, 1
Mayaquez, 9
Mollendo, 2 bxs. 4
Monrovia, 1 dm. 4
N.York, 100 100
Old Calabar, 2
Puerto Plato, 4
Rotterdam, 46
St. Croix, 1
San Domingo, 9
Singapore, 20 60
Smyrna, 3
Sulima, 10
Valparaiso, 49 cs. 16 121 dms. 1

**Painters' Colours**—
Barcelona, 6 cks. 4 cs.
Bordeaux, 1 bx.
Bremen, 20
Hamburg, 9 kgs.
N.York, 20 brls. 150 120 50
Boston, 4
Galatz, 100
Havre, 14

**Phosphate of Lime**—
New York, 7 c. 3 q. £8

**Phosphorus**—
Santander, 1 c. £11

**Pitch**—
Coronel, 20 brls.
Marseilles, 1,863 t. 18 c.

**Potash**—
Palermo, 1 t. 9 c. 2 q. £33

**Potassium Bichromate**—
Seville, 7 c. £14
Vera Cruz, 10 25

**Potassium Chlorate**—
Lisbon, 18 c. 2 q. £73
Oporto, 8 35
Genoa, 2 t. 10 116
St. Petersburg, 23 1,306
Sydney, 20 912
New York, 5 245
Rotterdam, 3 141
Antwerp, 1 48
Progresso, 1 10 92
Corunna, 10 26
Santander, 10 26
Naples, 1 5 57
Monte Video, 16 36
B. Ayres, 2 10 115
Catania, 5 16
Gothenburg, 22 15 1,105
Hiogo, 2 10 120
Shanghai, 1 10 70

**Potassium Muriate**—
Las Palmas, 20 bgs. £19

**Potassium Silicate**—
Valencia, 8 t. 10 c. £48

**Potassium Stannate**—
Bombay, 14 c. 3 q. £60

**Salt**—
Adelaide, 10 t.
Antwerp, 50
Bathurst, 196
Christchurch, 20
E. London, 17¾
Faroe Isles, 182
Frederica, 515
Hamburg, 83 16 c.
Iceland, 200
Iquique, 10
Kingston, Ja., 22¼
Malta, 4 cs.
Manaos, 1 7 3
Melbourne, 125
Miramichi, 198
Montreal, 700
Mossel Bay, 25
Para, 21 11
Rio de Janeiro, 4 6
Rotterdam, 122
St. John's, Nfld., 11
San Francisco, 766 3
Stockholm, 228 1
Talcahuano, 1,524½
Trangesundwyburg, 633 t.
Yokohama, 2 t. 3 c.
Bakana, 20
Boston, 300
Calcutta, 4,877
Ghent, 135
Halifax, 800
New Orleans, 65
Opobo, 12
Quebec, 500
St. John's, N.B, 600
Shediac, 300

**Salt Cake**—
Baltimore, 50 t. 11 c. £118
Adelaide, 21 1 58

**Saltpetre**—
Ceara, 1 t. 3 c. 2 q. £31
Porto Alegre, 17 3 20
Cartagena, 4 2 70
Vera Cruz, 1 22
Santos, 15 17
Boca, 5 4 2 89
Rosario, 2 10 53
Piræus, 7 10 161
Savanilla, 4 9
Pernambuco, 3 64
Cabadello, 19 1 23
St. John's, N.B., 1 5 1 27

**Sheep Dip**—
Punta Arenas, 4 t. 5 c. £150
Buenos Ayres, 13 t. 265 drs. 160 cks 1,182

**Soap**—
Alexandria, 10 cs.
Barbadoes, 100 bxs.
Bombay, 788 67 cs.
Buenos Ayres, 5 cks.
Malta, 20 2
Port Natal, 150 10
St. John's, Nfld., 130
San Sebastian, 1
Sherbro, 1
Sierra Leone, 1
Toronto, 400
Valparaiso, 50 1
Algoa Bay, 1,168
Boston, 10
Calcutta, 8 26
Callao, 3
Capetown, 1,150
Durban, 200
East London, 2,997
Elmina, 150
Gibraltar, 435 5 bdls.
G. Canary, 528
Java, 4,000
Kingston, Ja., 2,375
Las Palmas, 502
Madeira, 5
Montreal, 1 cs.
Morant Bay, 50
Mossel Bay, 800
New York, 700 20 tcs.
Oran, 50
Philadelphia, 100
Piræus, 25
Port Elizabeth, 690
Porto Alegre, 151
Rangoon, 2 cs.
Rotterdam, 400
San Juan, 50
Singapore, 25

**Soda Alkali**—
Cartagena, 17 brls.
Genoa, 75
Leghorn, 40
Melbourne, 80
Newcastle, N.S.W., 40
Seville, 50
Sydney, 30

**Soda Ash**—
Boston, 233 cks. 600 bgs.
New York, 2,402 1,400 218 tcs.
Santos, 50 brls.
Buenos Ayres, 100
Havana, 1
Maranham, 30
Montreal, 235
Philadelphia, 27 240
Santander, 22
Sherbrooke, 296
Sydney, 162
Varna, 100

**Soda Crystals**—
Gibraltar, 50 cks.
St John's, Nfld., 200 brls.
Seville, 6
Adelaide, 134 68 kgs.
Algoa Bay, 10
Boston, 280
Buenos Ayres, 31
Capetown, 25
Guayaquil, 20
New York, 140
Port Elizabeth, 30
Sydney, 29

**Sodium Arseniate**—
New York, 1 t. 13 c. 2 q.

**Sodium Biborate**—
Montreal, 10 t. 4 c.
Sydney, 5 3 q.

**Sodium Bicarbonate**—
Alexandria, 50 brls.
Amsterdam, 40 kgs.
Barcelona, 200 30
Cartagena, Spain, 30
Galatz, 10
Malaga, 3 cks. 120 7
Matanzas, 20
Miramichi, 16
New York, 200
Tampico, 20
Alicante, 100
Antwerp, 10
Batavia, 6 cks.
Calcutta, 1,000
Canterbury, 50
Catania, 30
Constantinople, 330
Dunedin Wf., N.Z., 50
Genoa, 140 14 cks.
Hamburg, 40
Nantes, 62
Newcastle, N.S.W., 120 kgs.
Palermo, 30 kgs.
Rotterdam, 25
St. John's, N.B., 100
Sydney, 30
Wellington, 205
Yokohama, 1,000

**Sodium Bichromate**—
Leghorn, 3 t. 2 c. 2 q.
Antwerp, 5 3 2

**Sodium Carbonate**—
Boston, 84 brls.
New York, 168

**Sodium Chlorate**—
Catania, 5 c.
New York, 5 t.
Rotterdam, 1 10
Hamburg, 4
Antwerp, 2

**Sodium Nitrate**—
Valencia, 5 t. 10 c. 2 q
Savanilla, 13
Genoa, 10 2 1
Rangoon, 1 5 1
Lisbon, 9 19 1
Sydney, 5 2
Trieste, 5 2
Catania, 10 2
Fiume, 6 7 3
Cartagena, 6 4 1
Malaga, 1 6 1
Ancona, 1 18 1
Barbadoes, 101 3 2

**Sodium Silicate**—
Seville, 82 cks. 135 brl
Acajutla, 9
Barcelona, 70
Bilbao, 50
Carril, 4
Ghent, 7
Malaga, 10
San Sebastian, 100
Santander, 25

**Sodium Stannate**—
Calcutta, 1 bg. 1 ck.

**Sodium Sulphate**—
Valencia, 18 t. 1 c. 3
Loanda, 40 bgs.

**Sodium Tannate**—
Calcutta, 7 c.

**Strontia**—
Rotterdam, 50 t. 8 c.

**Sulphur**—
Ceara, 1 t. 1 c. 2
Melbourne, in bulk,
Montreal, 134 bgs.
Boston, 334
Philadelphia, 334
Vera Cruz, 1 t. 19 c.
San Juan, 9 13 2
St. John's, N.B., 10 brls.

**Superphosphate of Lime**
Valencia, 60 t. 11 c.

**Tallow**—
Bilbao, 27 cks.
Lisbon, 68 bl
Messina, 3

**Tar**—
Coronel, 20 bl
Leghorn, 2 cks.
Santander, 11
Sierra Leone, 5

**Tartaric Acid**—
Callao, 1 c. 3
Bahia, 4

**Varnish—**
Antofagasta, 2 cs.
Genoa, 1
Leghorn, 6 10 cks.
Malta. 4 dms.
Barcelona, 2 bxs. 4
Bilbao, 1 dm. 1
Calcutta, 2

**Verdigris—**
Philadelphia, 1 t. 15 c. £90

**Waste Salt—**
Montreal, 46 t.

**White Lead—**
Arroyo, 2 cks.

**Zinc Chloride—**
Bombay, 4 t. 18 c. £92
New York, 3 1 23

## GLASGOW.

*Week ending June 23rd.*

**Acid—**
Rangoon, 7 t. 2¾ c. £58

**Alkali—**
Little Bay, N. F., 17 c. £4

**Ammonium Sulphate—**
New York, 41 t. 18½ c. £450
Barcelona, 176 4 1,357

**Benzol—**
Rotterdam, 13 dms. £135

**Bichrome—**
Rouen, 59 t. 14¼ c. £1,736
Gothenburg, 1 19 60
Antwerp, 24 13 768
Barcelona, 9 17¼ £322

**Bleaching Powder—**
Sydney, 6 t. 7 c. £45

**Chemicals** (*otherwise undescribed*)
Little Bay, N.F., 1 ck. 13 bxs. £18

**Colours—**
Antwerp, 12¾ c. £36

**Copper Sulphate—**
Italy, 21 t. 16½ c. £306

**Dyestuffs—**
**Cutch**
Rouen, 10 c. £14
**Extracts**
Halifax, 12 t. £286
Quebec, 9 13 c. 301
Montreal, £293
**Fustic Extract**
Quebec, 2 t. 3¼ c. £93
Montreal, 22

**Farina—**
Gothenburg, 4 c. £75

**Linseed Oil—**
Rangoon, 17¾ c. £20
Cape Colony, 14 24

**Litharge—**
Quebec, 8 t. 18½ c. £128

**Manganese—**
Rotterdam, 1 t. 13 c. £13
New York, 10 4 98

**Naphtha—**
Rouen, 20 t. 2½ c. £325

**Nitrate of Lead—**
Montreal. 2 t. 7¼ c. £42

**Paint—**
Sydney, £49
Calcutta, 4 t. 85
Rangoon, 3 15¾ c. 61
New York, 4 8¼ 78
B. Ayres. 7 11¼ 90

**Painters' Colours—**
Amsterdam, 3 cks. £2
Japan, 4 t. 8 c. 70
Cape Colony, £45. 15s.
Calcutta, 168

**Paraffin Wax**
Antwerp, 19¾ c. £26
Hong Kong, 2 t. 13 64
Japan, 10 15 333
Cape Colony, 13 10½ 452
Barcelona, 3 ¼ 90
Gijon, 4 2¼ 136

**Pitch—**
Rouen, 102 t. 6 c. £153
Gothenburg, 77 6¼ 200
Antwerp, 106 10 127

**Potash Salts—**
Cape Colony, 36 t. £4,980

**Potassium Bichromate—**
Rotterdam, 43 cks. £580

**Potassium Prussiate—**
Rouen, 5 t. 6¾ c. £298
New York, 846

**Pyrogallic Acid—**
B. Ayres, £21

**Rosin—**
Little Bay, N.F., 1 ck. £1
Calcutta, 108 t. 8½ c. 43

**Rosin Oil—**
Antwerp, 4 t. 18 c. £35
Rotterdam, 20 brls. £38. 14s.

**Salt—**
Little Bay, N.F., 3¾ c. £2

**Soap—**
Little Bay, N.F. 100 t. £105
Cape Colony, 70

**Sodium Bichromate—**
Rouen, 13 t. 16½ c. £600

**Sulphuric Acid—**
Rangoon, 39 t. 12¼ c. £433
Madras, 120

**Tallow—**
Rotterdam, 7 t. 7 c. £264

**Tar—**
Little Bay, N.F., 30 brls. £17
St. John's, N.F., 98 80 hf.-brls. 42
Stavanger, 25
Madras, 22

**White Lead—**
Sydney, 9 t. £203
Cape Colony, 4 18¾ c. 100

## HULL.

*Week ending June 18th.*

**Alkali—**
Reval, 4 cks.

**Ammonium Carbonate—**
St. Petersburg, 25 cks. 25 kgs.

**Anthracene—**
Rotterdam, 154 cks.

**Benzol—**
Ghent, 15 cks.
Hamburg, 8 dms.

**Bleaching Powder—**
Genoa, 10 cks
Libau, 18
Riga, 111

**Caustic Soda—**
Abo, 31 dms.
Brisbane, 37
Danzig, 150
Helsingfors, 5
Libau, 72
Rotterdam, 1 ck.
Reval, 30 165
Riga, 160
Stettin, 85
Wasa, 1 cs.

**Chemicals** (*otherwise undescribed.*)
Antwerp, 3 cks.
Alexandria, 24 cs.
Brisbane, 53
Copenhagen, 1 21 23 pks. 23 kgs.
Christiania, 336 slbs. 25 10 pkgs.
Drontheim, 214 pks.
Danzig, 2
Genoa, 32 cs. 1
Gothenburg, 50 1,634 slbs.
Hamburg, 71 62 20 pkgs.
Konigsberg, 7 pks.
Libau, 7 50
Marseilles, 1
New York, 210
Rotterdam, 64
Reval, 5
Rouen, 2
Riga, 15
St. Petersburg, 49 70 pkgs.
Stettin, 4 26 2
Stockholm, 66 2
Wasa, 6

**Cottonseed Oil—**
Antwerp, 100 c.
Amsterdam, 50
Bremen, 82
Copenhagen, 250
Flushing, 204
Gothenburg, 50
Hamburg, 2,281
Marseilles, 340
Naples, 80
Rotterdam, 1,433

**Creosote—**
Kjoge, 600 cks.

**Dyestuffs** (*otherwise undescribed*)
Danzig, 3 cs. 23 cks.
Hamburg, 4
St. Petersburg, 1 cs.

**Linseed Oil—**
Antwerp, 7 c.
Alexandria, 106
Bergen, 183
Brisbane, 648
Copenhagen, 33
Christiania, 476
Dronthiem, 373
Ghent, 7
Hamburg, 268
Helsingfors, 85
Rotterdam, 807

**Manure—**
Danzig, 100 bgs.
Ghent, 82
Rotterdam, 2,484

**Naphtha—**
Ghent, 8 cks.

**Ochre—**
Hamburg, 64 cks.

**Painters' Colours—**
Antwerp, 3 cs. 38 cks.
Amsterdam, 21
Abo, 15
Alexandria, 164 pkgs.
Bremen, 2 dms.
Bergen, 48 2 40
Brisbane, 3
Copenhagen, 1 42
Christiania, 72 dms. 34 124
Drontheim, 30 cs.
Dunkirk, 1
Danzig, 5
Flushing, 14 1
Genoa, 5
Gothenburg 5 1 16 dms.
Ghent, 19
Hamburg, 3 110 32
Helsingfors, 18
Konigsberg, 10
Leghorn, 4
New York, 1 525 65 kgs.
Rotterdam, 2 dms. 5 18 pkgs.
St. Petersburg, 213 4 cs.
Stettin, 118
Stockholm, 1
Wasa, 1

**Paraffin Wax—**
Danzig, 100 bgs.

**Pitch—**
Antwerp, 481 t.
Dunkirk, 144
Flushing, 60

**Soap—**
Bergen, 10 cs.
Hamburg, 2
Stettin, 1

**Tallow—**
Alexandria, 10 cks.
Bremen, 5
Flushing, 2
Uleaborg, 1

**Tar—**
Amsterdam, 9 cks.
Bergen, 8
Drontheim, 2
Gothenburg, 200
Hamburg, 25
Rouen, 1 cs.
Uleaborg, 6

**Turpentine—**
Alexandria, 10 cks.

**Varnish—**
Antwerp, 4 cs.
Amsterdam, 13 cks.
Copenhagen, 4
Danzig, 1 6
Gothenburg, 3 dms.
Stettin, 4

## TYNE.

*Week ending June 18th.*

**Alkali—**
Amsterdam, 61 t. 17 c.
Bergen, 2 13
Riga, 6 9

**Ammonium Sulphate—**
Hamburg, 80 t.

**Anthracene—**
Rotterdam, 23 t. 11 c.

**Antimony—**
Hamburg, 2 t. 10 c.
Montreal, 2 10

**Arsenic—**
Barcelona, 4 t. 12 c.
Venice, 5 2

**Bleaching Powder—**
Antwerp, 30 t. 2 c.
Hamburg, 51 13
Amsterdam, 22 14
Konigsberg, 4 19
Christiania, 7 17
Bergen, 1
Drontheim, 10 1
Rotterdam, 21 16
Copenhagen, 4 6
Riga, 24 16
Venice, 10
St. Petersburg, 48 6
Montreal, 3 19

**Caustic Soda—**
San Francisco, 87 t. 1 c.
Antwerp. 4 7
Hamburg, 11 15
Amsterdam, 13 8
Konigsberg, 11 7
Barcelona, 42 19
Bergen, 1 3
Rotterdam, 1 2
Venice, 25 9
Seville, 69 6

**Copperas—**
Aarhuus, 2 t. 8 c.
Bergen, 2 15

**Litharge—**
Antwerp, 2 t. 17 c.
Hamburg, 2 15
Amsterdam, 1 15
Copenhagen, 5
Riga. 7 8
Montreal, 5 4

**Magnesia—**
Antwerp, 3 t. 18 c.
Hamburg, ½
Barcelona, 16 15
Rotterdam, 4
Montreal, 2 1

**Paint—**
Vadsoe, 8 c.
Copenhagen, 2

**Phosphorus—**
Seville, 1 t. 19 c.

**Salt—**
Horsens, 1 t. 18 c.

**Soda Ash—**
San Francisco, 1 t. 6 c.
Konigsberg, 20 1
Laurvig, 24 15

**Soda Crystals—**
Antwerp, 8 t. 3 c.

**Sodium Hyposulphite—**
Hamburg, 4 t. 1 c.
Barcelona, 1 2
Rotterdam, 1 5
Montreal, 2 1

**Sodium Nitrate—**
Venice, 14 t. 9 c.

**Sodium Silicate—**
Barcelona, 10 t. 3 c.
Venice, 5 3
Seville, 5 4

**Sodium Sulphate—**
Gothenburg, 207 t. 1 c.

**Sodium Supersulphate—**
Barcelona, 14 c.

**Sulphur—**
Riga, 35 t.

**Superphosphate—**
Riga, 150 t. 3 c.

**Tar—**
Vadsoe, 1 t. 5 c.

**Turpentine—**
Antwerp, ½ c.

**White Lead—**
Montreal, 146 t.

## GOOLE.

*Week ending June 2nd.*

**Chemicals** (*otherwise undescribed*)
Hamburg, 10 cks.
Rotterdam, 1

**Coal Products** (*otherwise undesc'd.*)
Ghent, 18 dms.
Hamburg, 30 cks.
Rotterdam, 379

**Dyestuffs** (*otherwise undescribed*)
Antwerp, 2 cks. 1 dm
Rotterdam, 46

## GRIMSBY.

*Week ending June 6th.*

**Chemicals** (*otherwise undescribed*)
Antwerp, 2 cks.
Dieppe, 171
Hamburg, 18 pkgs. 1
Malmo, 10 cs.

**Coal Products** (*otherwise undes.*)
Dieppe, 152 cks.

# PRICES CURRENT.

WEDNESDAY, June 29th, 1892

Prepared by Higginbottom and Co., 116, Portland Street, Manchester.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids :—** | | | | |
| Acetic, 25 °/₀ and 40 °/₀ | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | | 50/- | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 °/₀) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ( ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 11 | 15 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| ,, ,, (medium qualities) | ,, | 4 | 15 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, ·880=28° | per lb. | 0 | 0 | 3 |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 9 | 17 | 6 |
| ,, ,, (grey) Hull | ,, | 9 | 17 | 6 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 2 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes :—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8¾ |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 10½ |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 8½ |
| ,, 50/90 ,, | ,, | 0 | 1 | 4 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 4⅞ |
| ,, (crude 60°) | per gallon | 0 | 1 | 2 |
| Creosote (ordinary) | ,, | 0 | 0 | 1 |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 0 | 11 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 44 | 17 | 6 |
| ,, Sulphate | ,, | 15 | 10 | 0 |
| ,, Oxide (copper scales) | ,, | 45 | 0 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 45 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 17 | 6 |
| ,, Litharge Flake (ex ship) | ,, | 14 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, ( brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 5 | 17 | 6 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 4 | 5 |
| ,, ,, Miscible, 60° O.P. | ,, | 0 | 4 | 2 |
| **Oils :—** | | | | |
| Cotton-seed | per ton | 19 | 15 | 0 |
| Linseed | ,, | 20 | 5 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4⅜ |
| ,, American | ,, | 0 | 0 | 5⅜ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4⅜ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 7 |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 10 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 10 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 10 | 0 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 9¾ |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 7 | 17 | 6 |
| Silver (metal) | per oz. | 0 | 3 | 4½ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 7 | 6 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 6 | 5 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 16 | 5 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8 |
| ,, Borate (Borax) | nett, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | nett pr. ton | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 15 | 0 |
| ,, Manganate, 25% | ,, | 11 | 10 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 4½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¾ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 16 | 6 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7½ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7¾ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 5 | 0 |
| ,, Brimstone : Best Quality (nominal) | ,, | 5 | 0 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 27 | 0 | 0 |
| Tin (English Ingots) | ,, | 102 | 0 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 21 | 15 | 0 |
| ,, Chloride (solution, 96° Tw.) | ,, | 10 | 6 | 0 |

THE

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AND

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## A REVIEW OF RECENT CHEMICAL LEGISLATION.

NOW Parliament has dissolved, and the electioneering fever is at its highest, perhaps it may not be out of place to briefly review some of the measures which have been before the late Parliament, and which are connected in more or less degree with the chemical and allied industries.

There certainly is no lack of such measures, and those who have turned their attention to these matters seem to have done so with more than ordinary vigour.

It would seem that there are periods which recur with almost rythmical regularity when the general tendency is to do everything by Act of Parliament, and to place nearly every branch of trade under State control.

We seem to have just passed through such a period, and a glance over the various measures which have been mooted will show what a number of industries would have been influenced had they all become law.

Ten at least may be cited as being connected with chemical industries, seven of which are directly of a chemical nature. These ten consist of The Alkali, etc., Works Bill, Artificial Manures, etc., Adulteration Bill, Beer Adulteration Bill (1 and 2), Hop Substitutes Bill, Margarine Acts Amendment Bill, Rivers Irwell and Mersey Prevention of Pollution Bill, Sale of Food and Drugs Act (1875) Amendment Act, Employers' Liability Act, and an Act to amend the Employers' Liability Law.

Of these bills the Artificial Manures Bill has been withdrawn, the Alkali, etc., Works Bill and the Irwell and Mersey Bill have become law, and the others are in various stages of advancement.

One cannot help feeling a desire to know where legislative control is likely to stop if we continue to advance at this rate. Though strongly in favour of suitable measures for the prevention of fraudulent or dangerous adulteration, and believing that such measures can only be successfully carried out by a thorough and competent system of inspection, still superfluous legislation cannot be too emphatically reprehended, as it only provokes "scoffs and scorns and contumelious taunts" at that which is warrantable and called for. It is frequently said that one half of the world does not know how the other half lives; but if the extension of legislative control is to be continued at the present rate, such a supposition will by no means be a true one, for, on the contrary, one half of the world will be paid to supervise the other half, in order to see that they do not transgress the limits which Parliament has prescribed.

There is another point which stands out rather prominently, and that is the number of amendments. A perfect bill is undoubtedly a most difficult thing to prepare, but the extent to which some bills are amended almost makes us dubious as to the soundness of the originals. That there is need for amendment in some cases there can be no question,

A fitting instance of the existence of such a need presented itself not long since, when the Food and Drugs Act failed to convict on the presence of alum in bread, because the former was neither a food nor a drug. But it is hardly surprising that a bill of seventeen years' standing should require modifying if not re-modelling.

The unfortunate part of some of the amendments is that it is difficult to find where the amending qualities come in. Instead of renewing the weak portions of the bill, in some cases they are patched up and cobbled to an extent which shows on the face of things how insufficient the measure was at the outset or has become by the process of time. To make matters worse, moreover, advantage is often taken of exceptional circumstances to get these amendments read and rushed through, so avoiding the opposition which they would undoubtedly have provoked under a normal state of affairs. A most lamentable instance of this was the passing of the Alkali Works, etc., Amendment Bill during last session, but the matter is now a thing of the past, and those who should have benefited by the amendment will most probably be among the first to suffer. The only consolation perhaps lies in the fact that the present is about the most favourable time for calling the attention of the gentlemen who represent the various constituencies to these anomalies, and doubtless chemical manufacturers are capable of fostering their own interests under these circumstances, and will do so.

## THE MERSEY AND IRWELL JOINT COMMITTEE.

On Monday last a meeting was held at the offices of the Joint Committee of the Mersey and Irwell watershed, Mr. J. T. Hibbert presiding.

The Clerk (Mr. Hulton) reported the passing by the House of Commons and the House of Lords Committees of the Bill introduced into Parliament by the Joint Committee for the prevention of the pollution of the rivers in the watershed.

The Chairman said he must congratulate Mr. Hulton on his success in connection with the Bill. He regretted that in relation to this matter it was necessary he should make some remarks about the action of the

LOCAL GOVERNMENT BOARD

with reference to the Bill. He had been connected with that Board on two occasions as Parliamentary secretary, and had always been on terms of friendship with those connected with it. At the same time he could not avoid referring to the action of the Board. He did not blame them for what they had done when the Bill was before the House of Lords. So far as one could judge they did not there take any active part in showing their opposition. In the House of Commons Committees, however, their representative was present the whole time the proceedings were in progress, and he took part with the opponents of the Joint Committee where he ought to have been neutral. He sat with their opponents, suggested various alterations, and almost brought pressure to bear on the committee in opposition to the Bill. Sir Francis S. Powell, the chairman of the committee, had told him that the Local Government Board had tried to bring pressure to bear upon him and the committee, and he told them he was not going to be influenced in his decision by any Board. (Hear, hear.) He thought they were greatly indebted to Sir Francis Powell for the independent position he had taken in the matter. (Hear, hear.) In their Act they had got rid of some references to the Local Government Board and he was glad they had done so. He thought the time was not far distant when they would get rid of some of those references to the Local Government Board. He did not say that all the control of the Local Government Board was bad. Some of it was necessary and some was good, but when there was an important joint committee like that dealing with the whole watershed he thought they ought not to be treated like children. (Hear, hear.) References which might be necessary in the case of small local boards, or boards of guardians or township authorities ought not to be necessary in the case of important committees like that or important authorities like County Councils. He hoped the next Parliament would inquire fully into this matter and that the result might be the removal, to some extent, of the fetters imposed on large authorities. (Hear, hear.) He would only add with reference to the general opposition to the Bill that he regretted that any authority watershed and represented on the Watershed Board shoul opposed the Bill in the way they did, and should thus have le large an expenditure of money, both on the part of the Joint Co and on the part of the authorities themselves. They had throw large sums of money for no purpose whatever, for though th mittee had stronger powers under the new Act than the old same time they could have proceeded against these authoritie the old Act and taken their chance. He hoped the authoritie selves would regret what they had done when they came to bills. (Hear, hear.) As we were in the midst of the general e he did not think it would be well to decide upon definite acti day with respect to the Bury and Macclesfield Corporation suggested that they should give notice of their intention to cons two cases at their next meeting.

The suggestion was adopted.

SIR H. E. ROSCOE'S REPORT.

In answer to a question by Mr. Groves, it was stated t report of Sir H. Roscoe, alluded to at the time as a "prel report," was in reality a final report, but Sir Henry had undert advise from time to time with regard to any points that might a

The Inspector (Mr. Tatton) reported with regard to what i done and left undone in various parts of the watershed with re the prevention of the pollution of the rivers, and it was resolved such action as was considered necessary with reference authorities and firms that are not doing their duty in the matter.

The Chairman explained that 29 authorities had sewage w operation, but that they varied in effectiveness. Some were inef and would require alteration. Six of the authorities, includin chester, had works in construction. In 23 places there were no s in operation, and on 20 of these 23 authorities notices had been The two months' notice had now expired, and he thought desirable that further action should be taken against them at th meeting. The figures he had submitted dealt only with the authorities. The rural had in nearly every case taken some although it might not in every case have been effective.

Mr. V. K. Armitage gave notice that at the next meeting he move that action be taken against those authorities which scheme.

The meeting then terminated.

## PROTECTION FOR RUSSIAN NAPHTH PRODUCERS.

According to the *Viestnik Financoff*, the Russian Gov has been petitioned by the more reputable representative naphtha industry for protection against the competition with wh meet from an adulterated heavy oil, which now appears i quantities in the markets of the Empire. When illuminating c first subjected to excise duty in 1887, the rates were fixed at 40 kopecks per pood for light and heavy oils respectively. To t gory of light oils belonged all naphtha distillates with a specific between ·730 and ·830 at a temperature of 15° C., and the point of which was below 45° C., Oils were considered as hea their specific gravity in the same temperature was above ·830 exceeding ·885, and their flashing point 45° C. and above. Th of the Government in fixing a lower duty for the heavy oils encourage their manufacture. Oils, even though of a greater gravity than ·83, but the flashing point of which was below paid the higher duty, and on the other hand oils with a less gravity, but a flashing point not below 45° C., paid the lower t the cost of production of heavy oils, as compared with that of th kinds, was not covered by the difference in the duties, all th factories at first engaged in producing heavy oil gradually ceas so, and at the same time larger quantities of adulterated heavy l paying the lower duty appeared in the markets. This oil, alt such specific gravity as brings it within the category of "he produced by simply mixing inferior kerosene with unrefin heavier oils. At first this product was chiefly consumed countries about Baku and Batoum, in the Caucasus, and Pe recently, as already stated, it has been finding its way in large q into the interior of the Russian empire, where, owing to the s of the duty charged on it, it competes unfairly with the genui sene, and herein lies the complaint of the kerosene producers petitioning for protection. The statistical returns give eviden extraordinarily rapid increase in the quantity of kerosene pa lower, or 30 kopeck, tax sent from Baku and Batoum into th within the last three years. The quantities for 1889, 1890, a were respectively: 940,000, 1,570,000, and 8,095,000 pood returns further show that the greater part of the heavy kerosene sent out by the most primitive kinds of factories, such as are a unadapted for producing genuine kerosene by the legitimate

the water supply being contaminated with sewage. The coroner attributed the death of the child and the illness of the mother and another child to the foul state of the water. The premises had not undergone sanitary inspection for six years.

Roots as Indicators of the Soil.—The researches of A. Heinrich show that the proportion of nutrifying matter present in the roots of plants indicates the amount in the soil. A. Von Dikow has recently made some experiments to verify this statement. He used barley which was grown in the same soil, but fortified with varying proportions of artificial fertilizers. He finds that the roots of plants show what kind of fertilising materials they stand in need of; but, nevertheless, the quantity found does not indicate the amount of fertilising matter in the soil which is capable of assimilation. And also that where the roots contain the maximum of nutrients, it is no indication that the soil is as rich in fertilising materials as it can be.

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

The benzol market is somewhat quiet through buyers holding back. 90's could be obtained in limited quantities at 1s. 8d. to 1s 8½d. and 50-90's at 1s. 3½d., but prices would be forced up immediately if many enquiries occurred. There is no change to report in anthracene, prices remain nominally 10d. for 30% A and about 7½d. for 30% B. Most other tar products remain *in statu quo*.

The sulphate of ammonia market closes quiet, but fairly steady. Beckton price is still £10. 2s. 6d. but second hand parcels are being sold at less than this price. Outside London makes are going at £9. 17s. 6d. less 2½%, and it seems probable that existing prices will be fairly well maintained. Hull has been doing at £9. 16s. 3d. and Leith at £9. 17s. 6d.

## REPORT ON MANURE MATERIAL.

Throughout the week, owing to the elections, there has been very little business doing, and prices remain without material alteration.

There are again sellers of 75/80% Florida phosphate rock at 9d. per unit, but U.K. buyers do not seem disposed to pay this price in the meantime. Hot-air dried Peace River rock offers at 7½d., Florida Land pebble rock 60% at 7¼d., and 7¼d. is probably nearest value of hot-air dried Bull River rock. We do not hear of anything special either in Canadian or Continental phosphates.

A further cargo of River Plate bones, near at hand, has been sold at £4 3s. 9d., and this is probably nearest value of any handy cargoes afloat. Crushed Kurrachee bones, for autumn shipment, continue to offer at £4. 5s. per ton, ex quay Liverpool, but do not find buyers £4. 5s. would buy East Indian bone meal, fair average quality, for summer and autumn shipment, ex quay Liverpool, but for fine quality, on sample, 2s. 6d. to 5s more would have to be paid. On spot East Indian bone meal may be had at £4. 2s. 6d. up to £4. 10s., according to quality, ex store.

The nitrate of soda market continues very firm, at 8s 3d. per cwt. for ordinary quality, and 8s. 4½d. for refined, on spot. Due cargoes are worth 8s. 2¼d. to 8s. 3d. per cwt.; May and June shipments about 8s. 6d., and later shipments 8s. 7½d. to 8s. 9d.

We do dot hear of any important transactions in dried blood. Nearest value of River Plate is about 8s. 6d. per unit, ex quay Liverpool, and home prepared 9s. 3d. to 9s. 6d. per unit, delivered free to rails at works

## MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade, the position generally is without change in regard to the staple products. Bleaching powder continues firm at £7. 10s. nett on rails at makers' works, and there is fair enquiry both for prompt and forward delivery. Caustic sodas are steady, and the current quotations are without alteration, viz.:—F.o.b. Tyne, 77%, £11. 15s.; and f.o.b. Liverpool, 74%, £11. 5s.; 70%, £10. 5s.; 60%, £9. 2s. 6d. 10 ton lots. In soda ash also prices are very steady, considering that the production is rather on the increase than otherwise Values still run between 1 5/16d. and 1⅜d. nett f.o.b. Liverpool and Tyne, for all the ordinary qualities of Solvay and Leblanc ash. Refined ash 1⅝d. per degree In soda crystals there is no change. Chlorate of potash is still to be had at 6¾d. for prompt and early delivery. Chlorate of soda scarce at 8d. per lb. In recovered sulphur there is more resales at £4. 15s. to £5. per ton f.o.r. makers' works. Vi muriatic acid are steady in price, and in fair demand. Sul copper still neglected, and prices ruling from £15. to £15. 5s Acetate of lime, brown, is firm at £5. 17s. 6d; grey, £10. ton at usual points Acetate of lead quiet at £25. 10s. per White powdered arsenic is without any special movement quotations being £11. 15s. nett f.o.r. Garston. Borax is m by the convention at £29. per ton, Oxalic acid rather firm nett per lb. Yellow prussiate of potash is rather more d move at 9⅞d. to 10d. per lb. Bichromates are selling as usu prices. Trade in miscellaneous chemicals is on the whole qui

## THE METAL MARKETS.

LONDON, Wednesday.—Pig iron firm; Scotch warran at 41s. 4½d. cash. Hematite 49s. 3d. cash. Copper slightl Chili bars, G.O.B.'s and G.M.B.'s closed at £44. 13s. 9d. c £45. 2s. 6d. to £45. 10s. three months. Tin easier: Stra at £99. 10s. cash, to £97. 5s. three months. Australian, £ cash. English ingots, £101. 10s. Lead advanced: £10. 8s. 9d. to £10. 10s.; English, £10. 12s. 6d. to £ Silesian spelter, ordinary, £21. 12s. 6d. to £21. 15s. Qu £7. 2s. 6d., first hands; £6. 19s. to £7., second hands. shares unchanged: Cape, 1 9/16 to 1 11/16; Copiapo, 2 5/16 to 2 7/16; 2¾ to 3; Mason and Barry, 3⅞ to 4; Rio Tinto, 16 1/16 t Tharsis, 4 11/16 to 4 13/16; Namaqua, ¾ to 1; Panulcillo, ⅜ to ½

GLASGOW, Wednesday.—Market firm, with fair Scotch done at 41s. 4½d. and 41s. 5d. cash, closing with l 41s. 4½d. cash, and 41s. 6d, one month; sellers ask 41s. 5 and 41s. 7d one month. Middlesbrough closes with buyers cash, sellers ask 42s. Hematite closes with buyers at 4 cash; sellers ask 49s. 9d.

WOLVERHAMPTON, Wednesday.—The opinions expr 'Change this afternoon as to the prospects of the quarterly meeti week, point to the probability of a redeclaration of present Foreign demand is too poor to admit of an advance, and a red not probable in view of the fact that neither fuel nor wages ar to be any lower this year. Marked bars were quoted £8., ga sheets £11 12s. 6d., tank plates £6. 10s., rods about £7., l 47s., Staffordshire cinder pigs 37s.

## LIVERPOOL OIL AND COLOUR MARKE

LIVERPOOL, Wedne

OILS.—Palm oil is rather quieter. Sales are reported at £ for Lagos. There is not much doing. Olive: there has moderate business doing at last week's quotations. Linseed *in statu quo* at recent currencies. Cottonseed, Liverpool ref slightly weaker at 19s. 6d. per cwt. American remains at 20 has been a moderate business doing in Liverpool refined. Cas good seconds Calcutta has been selling during the week at 2 is now again quoted at 2⅝d. per lb. First pressure French quoted 2 13/16d. Tallow is dull and without alteration. Resin, c varies between 4s. and 4s. 1½d., but it is very quiet. Higher tend towards an advance. Spirits of turpentine have experi further drop and to-day are selling steadily at 23s. per cwt. Pet American 5⅛d. to 6¼d, according to quality; Russian refine to 4½d. per gallon.

COLOURS.—Prices continue unaltered. Ochres: Oxf common, £10., medium, £12., best, £15.; Derbyshire, comm medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and c 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. t M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 55s. White lead, red lead, and oxide of zinc unchanged. V red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d. 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, Oxide of iron: common, £6.; medium, £10.; finest, £20.

## THE LIVERPOOL MINERAL MARKET

The market has continued steady, with little alterations in Manganese: Stocks continue to be reduced, whilst arrivals are prices, therefore, are firm. Borate, 7d. per lb.; sulphate £2 oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s. Magnesite: Raw lump, stocks large; prices flat. Raw

| | Shares. |
|---|---|
| Sir H. Wiggin, Bart., Metchley Grange, Harborne, near Birmingham.. | 1 |
| H. A. Wiggin, Harborne Park, near Birmingham | 1 |
| A. S. Johnstone, Harborne | 1 |
| W. W. Wiggin, Forehill House, King's Norton | 1 |
| A. H. Wiggin, Griffin's Hill House, Selly Oak, near Birmingham | 1 |
| Major R. C. B. Lawrence, Shorncliffe, Kent | 1 |
| Captain E. A. Wiggin, 13th Hussars, Ballincollig, Co. Cork, Ireland | 1 |

RHEA TREATMENT SYNDICATE (CASPER'S PATENTS), LIMITED.—This company was registered on the 29th ult., with a capital of £12,000., divided into 2,000 preferred shares of £5. each, and 2,000 deferred shares of £1. each, to acquire, develop, and turn to account certain inventions for which patents No. 11,973 of 1888 and No. 20,610 of 1891 (provisional specification) have been granted, relating to the treatment of rhea and other vegetable fibre, and, with a view thereto, to enter into an agreement with Mr. E. Casper. The subscribers are:—

| | Shares. |
|---|---|
| E. H. Collins, 19a, Coleman-street, E.C., accountant | 1 |
| H. C. Wilson, 19a, Coleman-street, E.C., accountant | 1 |
| E. J. Andrews, 2, Templar-street, Camberwell, S.E. | 1 |
| H. Gwynn, 18, Kelvin-road, Highbury Park, N., clerk | 1 |
| A. Dunn, 215, Gresham House, E.C., merchant | 1 |
| W. J. Wilcox, 136, Holmsdale-road, South Norwood, S.E., clerk | 1 |
| G. C. Fraser, Bromley-by-Bow, engineer | 1 |

SURREY FULLER'S EARTH CO., LIMITED.—This company was registered on the 27th ult., with a capital of £6,000, in £1. shares, to enter into an agreement between Mr. H. Dyson, of Huddersfield, of the one part, and the company of the other part, and to establish and carry on Fuller's earth works. The subscribers are:—

| | Shares. |
|---|---|
| H. Dyson, King's-villa, Huddersfield | 1 |
| Mrs. H. Dyson, King's-villa, Huddersfield | 1 |
| Miss M. E. Dyson, King's-villa, Huddersfield | 1 |
| T. Holdsworth, Somerset-road, Huddersfield | 1 |
| Miss A. Morley, Nutfield, Surrey | 1 |
| B. E. Ratliffe, Melrose Cottage, Nutfield, Surrey | 1 |
| Mrs. B. E. Ratliffe, Melrose Cottage, Nutfield, Surrey | 1 |

T. R. GREEN AND CO., LIMITED.—This company was registered on the 29th ult., with a capital of £50,000., in £5. shares, to acquire and carry on the business of soap and candle makers, tallow, oil, and grease refiners, drysalters, bone boilers, etc., carried on by the Tyne Drysaltery and Packing Co., Limited, at the Lime Street Works, Ouseburn, Newcastle, and with a view thereto to enter into an agreement with the said company and Mr. T. D. Challoner, its liquidator. The subscribers are:—

| | Shares. |
|---|---|
| W. Wills, 3, Vicarage-terrace, Sunderland, merchant | 1 |
| T. Green, 38, City-road, Newcastle, merchant | 1 |
| C. G. Green, 38, City-road, Newcastle, merchant | 1 |
| R. H. Wesencraft, 3, Northumberland-terrace, Tynemouth | 1 |
| G. Dixon, 60, Malvern-street, Newcastle | 1 |
| J. Bland, Wear View, Chester-le-Street | 1 |
| J. Harbottle, New York, Earsdon, grocer | 1 |

# The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

## APPLICATIONS FOR LETTERS PATENT.

**Manufacture of Drain Pipes, etc. from Sewage Sludge.** H. Lockwood. 11,462. June 20.
**Improvements in Brewing.** D. H. Croll. 11,481. June 20.
**Improvements in Filtering-Plates.** L. A. Enzinger. 11,489. June 20.
**Production of Yellow Colouring Matters.** J. R. Geigy. 11,502. Jun
**Obtaining Oxygen and Nitrogen from Atmospheric Air.** L. Ch 11,504. June 20.
**Manufacture of Dihydroxynaphthalene Sulpho Acids.** B. Willcox. June 20.
**Secondary Batteries.** W. A. Rose. 11,552. June 20.
**New Colouring Matters.** B Willcox. 11,533. June 20.
**Lubricators.** C. S. Snell and Woodhouse and Rawson United, Ltd. June 20.
**Extracting Gold and Silver from Ores.** C. M. Pielsticker. 11,552. J
**Improved Machinery for Manufacture of Retorts and Pipes, etc. Clay.** W. S. Bancroft. 11,557. June 21.
**Waste Steam Utiliser.** L. Clement. 11,566. June 21.
**Cleaning Cotton Waste, etc.** W. Hargreaves and J. Hargreaves. June 21.
**Extracting Fat, etc., from Wool.** W. E. Heys. 11,581. June 21.
**Forced Draught Apparatus.** J. Hill. 11,588. June 21.
**Reservoirs for Transporting Petroleum Oils, etc.** T. Mudd. 11,590. J
**Manufacture of Beer.** G. E. Jacquemin. 11,604. June 21.
**Improvements in the Manufacture of Iron and Steel.** F. Siemens. June 21.
**Smoke Burning Household Grate.** J. H. Dales. 11,612. June 21.
**Purifying Feed Water.** J. Y. Johnson. 11,615. June 21.
**Ageing Spirit.** R. C. Scott. 11,638. June 21.
**Tasmanian Oils.** H. L. Sharp, junr. and J. R. Causton. 11,691. June
**Improvements in Evaporating Apparatus.** F. W. Scott, E. G. Scott, W. Scott, junr. 11,694. June 22.
**Machinery for Manufacturing Glass Bottles, etc.** B. A. Spaull. June 22.
**Obtaining Steam from Waste Heat of Molten Slag.** H. E. 11,704. June 22.
**Distilling Apparatus and Acid Concentrating Apparatus.** E. J. 11,705. June 22.
**Manufacture of Tin and Terne Plates.** H. H. Lake. 11,713. June 22
**Deodorizing and Utilising Refuse and Sewage Sludge.** J. W. 11,724. June 23.
**Carbonite.** J. M. Stuart and F. Webb. 11,734. June 23.
**Cement from Sewage Sludge.** W. Webster. 11,765. June 23.
**Hardening and Preserving Natural and Artificial Stone.** W. H. Tal C. H. Venning. 11,766. June 23.
**Distilling Sea Water.** S. Smillie 11,787. June 23.
**Air and Gas Carbureting Apparatus.** S. Marcus and E. F. Bothe. June 23.
**Filters.** B. M. Santurio. 11,816. June 23.
**Obtaining Zinc or its Compounds from Waste Liquors.** A. T. Hall C. Robinson. 11,828. June 23.
**Tanning by Electrolytic Action.** E. J. Finot. 11,835. June 23.
**Separating Metals from their Ores.** W. L. Wise. 11,854. June 25.
**Manufacture of Naphthalene Sulpho Acids.** B. Willcox. 11,865. J
**New Basic Colouring Matters.** B. Willcox. 11,876. June 25.
**Production of Potassium Carbonate from Potassium Sulphate.** P. 11,889. June 25.

# Gazette Notices.

## PARTNERSHIPS DISSOLVED.

J. T. ALFORD AND B. W. FORD under the style of the United Oils Co., street, Fenchurch-street, City, lubricating oil merchants.
J. CHALLENDER AND S. O. LEES under the style of the Gas Compress Manchester, manufacturers and purveyors of compressed gases.
W. P WRIGHTSON, F. G. HAIGH, AND W. C. HAIGH under the style of t Soap Co., Manchester, fluid soap manufacturers, as far as regards F. C and W. C. Haigh.

## BANKRUPTCY ACTS, 1883 and 1890.

### Receiving Orders.

HYAMS, HYAM, Middlesex-street, Aldgate, mineral water manufacturer.
CORRIS, RICHARD, Birkenhead and Rock Ferry, Cheshire, plumber, painter

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending June 25th.*

**Acetic Acid—**
Holland, 216 pkgs. A. & M. Zimmermann

**Acetone—**
Holland, 3 pkgs. A. & M. Zimmermann
" 20 Little & Johnston

**Alkali—**
France, 100 c. Arnati & Harrison
" 20 Phillipps & Graves

**Alumina Sulphate—**
Germany, 103 pkgs. Tough & Henderson

**Ammonium Chloride—**
France, 18 pkgs. Carey & Sons

**Arsenic—**
Germany, 70 pkgs. Burgoyne, Burbidges, & Co.

**Asbestos—**
N. Russia, £12 W. F. Malcolm & Co.
Germany, 20 Phillipps & Graves

**Barytes—**
Germany, 19 cks. S. H. Willoughby
Belgium, 23 J. L. Lyon & Co.
Germany, 55 pkgs. W. Harrison & Co.
Belgium, 20 "
Holland, 115 Magee, Taylor, & Co.

**Borate of Manganese—**
Germany, 10 pkgs. Petri Bros.

**Caoutchouc—**
Germany, 43 c. L. & I. D. Jt. Co.
" 21 C. Atkins & Nisbet
E. Indies, 38 Lewis
Rangoon, 388 L. & I. D
Zanzibar, 17 "
" 94 Anderson, W

**Caustic Potash—**
France, 45 c. Pet
" 25 drs. Spies Bros

**Chemicals** (*otherwise undesc*
Germany, 9 pkgs. Craver
" 73 T.
" £12 Burgoyn

Holland, 19 R. Morrison & Co.
,, 20 B. S. Gerothwohl & Co.
Germany, 92 A. & M. Zimmermann

**Cream of Tartar—**
Holland, 5 pkgs. B. & F. Wf. Co., Ltd.
,, 101 A. Hughes
France, 15 W. C. Bacon & Co.
,, 6 J. Puddy & Co.
,, 4 B. & F. Wf. Co., Ltd.
Italy, 22 Howards & Sons
,, 22 Italo-Brit S. N. Co.
Spain, 10 W. C. Bacon & Co.
Holland, 27 R. Smith
,, 4 Middleton & Co.

**Dyestuffs—**
E. Indies, 80 pkgs. E. Davis & Co.

**Annatto**
Adelaide, 3 pkgs. Major & Field

**Argols**
Italy, 198 pkgs. Thames S. T. & L. Co., Ltd.

**Cutch**
Rangoon, 4,393 pkgs. Arracan & Co.
,, 500 H. A. Litchfield & Co.
,, 500 Kleinwort, Sons, & Co.
,, 850 A. Howden & Co.
,, 804 Perkins & Homer
,, 300 Widekind & Co.
,, 500 W. H. Cole & Co.

**Divi Divi**
U. States, 108 pkgs. Isaac & Samuel

**Extracts**
Belgium, 125 pkgs. Leach & Co.
,, 50 L. J. Levinstein & Sons
U. States, 10 L. & I. D. Jt. Co.
France, 36 Carey & Sons
Denmark, 1 J. Sinclair & Son
Holland, 1 ,,
Denmark, 16 Bailey & Leetham
Austria, 104 Italo-Brit S. N. Co.
Jamaica, 3 L. & I. D. Jt. Co.

**Gambier**
Singapore, 218 pkgs. Leach & Co.
,, 437 Adamson, Gilfillan, & Co.

**Indigo**
E. Indies, 41 chts. Ernsthausen & Co.
,, 15 Parsons & Keith
,, 23 L. & I. D. Jt. Co.
,, 40 Arbuthnot, Latham, & Co.
Holland, 1 Ripley, Roberts, & Co.

**Madder**
Holland, 2 pkgs. Skilbeck Bros.

**Myrabolams**
E. Indies, 600 pkgs. A. Hagan
,, 3,632 L. & I. D. Jt. Co.
,, 683 Cayzer, Irvine, & Co.

**Sumac**
Italy, 300 pkgs. Beresford & Co.

**Tanners' Bark**
Adelaide, 50 t. Devitt & Hett
,, 117 Beresford & Co.
Belgium, 28 Leach & Co.
Natal, 16 A. & W. Nesbitt
,, 2 R. G. Hall & Co.

**Turmeric**
E. Indies, 20 pkgs. L. & I. D. Jt. Co.
Cochin, 560 Union L. Co., Ltd.
,, 400 Elkan & Co.

**Valonia**
A. Turkey, 25 t. Anning & Cobb
,, 310 A. & W. Nesbitt

**Farina—**
Holland, 50 pkgs. J. Knill & Co.

**Glucose—**
France, 200 pkgs. 200 c. L. Norman & Co.
,, 400 400 c. J. Barber & Co.
U. States, 75 190 L. Sutro & Co.
,, 250 250 Ohlenschlager Bros.
,, 600 600 Humphrey & Co.
France, 200 200 Barrett, Tagant, & Co.
U. States, 50 275 H. Johnson & Sons
,, 1,000 1,000 J. Barber & Co.
,, 250 250 J. Knill & Co.
,, 400 2,200 Prop. Chmbln.'s Wf.
,, 100 582 Devitt & Hett
,, 500 500 Baxter & Hoare
,, 140 867 Prop. Scott's Wf.
,, 50 280 Page, Son, & East
,, 1,450 4,687 R. G. Hall & Co.
France, 200 200 Weatherley, Mead, & Co.
Holland, 120 120 C. A. Farmer

**Glycerine—**
Germany, £200 F. Boehm
,, 85 Beresford & Co.
Holland, 850 Spies Brcs. & Co.

**Guano—**
Jamaica, 30 t. L. & I. D. Jt. Co.

**Manure—**
E. Indies, 10 c. L. & I. D. Jt. Co.
Sydney, 1 t. A. Gibbs & Sons
France, 300 Anglo Contl. G. Wks.

**Methyl Alcohol—**
Germany, a quantity Elkan & Co.
,, 10 dms. Domeier & Co.

**Mica—**
U. States, £45 W. M. Smith & Sons
,, 70 Knight & Morris

**Ochre—**
France, 136 cks. W. Harrison & Co.
,, 5 W. H. Carey & Sons

**Painters' Colours—**
France, 10 pkgs. Flageollet & Co.
Holland, 6 cks. T. Palmer
Germany, 33 L. & I. D. Jt. Co.
E. Indies, 9 ,,
Holland, 2 G. Rahn & Co.
Belgium, 5 T. Palmer
Sweden, 90 Burrell & Co.
Germany, 3 Phillipps & Graves
,, 16 S. H. Willoughby
,, 2 T. H. Lee
U. States, 3 L. & I. D. Jt. Co.
Belgium, 2 L. J. Lyon & Co.
Germany, 1 H. Keller & Co.
Holland, 11 R. Baelz & Co.
,, 45 cs. Magee, Taylor, & Co.

**Paraffin Wax—**
Germany, 54 cs. Grosscurth & Luboldt
,, 7 Drolenvaux & Bremner
U. States, 70 brls. L. & I. D. Jt. Co.
,, 169 C. H. Wall
,, 500 Mordaunt Bros.
,, 72 cs. Prod. Brokers' Co.
,, 953 J. H. Usmar & Co.

**Phosphate Rock—**
France, 200 t. Lawes Manure Co., Ltd.
U. States, 1,960 Anglo Contl. G. Wks.
Belgium, 240 Odams Chemical Manure Co.

**Phosphoric Acid—**
Germany, 23 pkgs. Phillipps & Graves

**Plumbago—**
Ceylon, 203 brls. Props. Sun Wf.
Holland, 25 cks. J. Knill & Co.
Ceylon, 156 R. G. Hall & Co.
Holland, 17 B. Gallaway
E. Indies, 333 Thredder, Son, & Co.
Holland, 33 B. Gallaway
Germany, 22 Le Sueur & Co.

**Potash—**
Germany, 20 pkgs. H. Lambert

**Potassium Bicarbonate—**
Holland, 3 cks. A. & M. Zimmermann

**Potassium Carbonate—**
Holland, 70 c. A. J. Luke & Co.
France, 11 cs. Beresford & Co.
,, 27 H. Briscoe & Co.
Germany, 387 C. Brumlen & Son,
Holland, 380 Spies Bros. & Co.

**Potassium Sulphate—**
France, 259 pkgs. Weatherley, Mead & Co.
,, 202 F. W. Berk & Co., Ltd.

**Rosin—**
U. States, 500 brls. F. & S. Cheeseman & Co.

**Saltpetre—**
Germany, 69 cks. P. Hecker & Co.

**Silica—**
Germany, £110 A. Haacke & Co.

**Sodium Acetate—**
France, 9 pkgs. S. F. Waters & Co.

**Sodium Hyposulphite—**
Germany, 181 pkgs. F. Boehm

**Talc—**
E. Indies, £10 Greenwood & Co.

**Tallow—**
U. States, 40 cks. R. Tucker & Co.
N. Zealand, 5 L. & I. Dk. Co.
Sydney, 111 Leach & Co.
,, 79 Coml. Banking Co. of Sydney
,, 150 J. Greig
,, 121 Horne & Co.
Melbourne, 231 Goldsbrough, Mort, & Co.
Sydney, 64 Anning & Cobb
,, 129 Goad, Rigg, & Co.
,, 25 Cuthbert & Hall
N. Zealand, 36 J. Morrison & Co.
P. Arenas, 6 Dyster, Nalder, & Co.
Sydney, 198 Anning & Cobb
U. States, 100 Fairclough, Dodd, & Jones
Sydney, 62 Dalgety & Co.
,, 26 Australian Meat Co.
Belgium, 13 H. Hill & Sons
Melbourne, 68 Kaul & Haenlien
,, 3 N. Z. L. & M. A. Co.

**Tartaric Acid—**
Holland, 3 pkgs. Domeier & Co.
,, 31 B. & F. Wf. Co., Ltd.
,, 10 B. & N. Wf. Co., Ltd.
,, 20 Middleton & Co.
,, 17 R. Smith
France, 13 B. & F. Wf. Co., Ltd.

**Ultramarine—**
Belgium, 7 cs. Leach & Co.
Germany, 12 pkgs. G. Steinhoff
,, 2 cks. H. Lambert
,, 9 H. Brooks & Co.
Holland, 15 Elkan & Co.
,, 10 Hernu, Peron, & Co.
,, 1 Phillipps & Graves

**Varnish—**
U. States, 22 pkgs. Williams, Torrey, & Co.
,, 6 Hopton & Co.
,, 5 Davies, Turner, & Co.
,, 4 C. Arkell & Co.
,, 16 Beck & Pollitzer
Germany, 1 T. H. Lee
,, 1 Stobbs, Wilson, & Co.
Belgium, 1 T. Palmer

**White Lead—**
Holland, 76 cks. Burrell & Co.
France, 16 W. Harrison & Co.
Belgium, 20 T. T. Creed
,, 40 T. & W. Farmiloe
,, 23 brls. Brougham Young
Germany, 10 S. H. Willoughby
,, 28 Magee, Taylor, & Co.
Belgium, 9 D. C. Thomas & Sons
Holland, 74 Phillipps & Graves
Germany, 39 H. Lambert
Holland, 19 Randall Bros.
,, 19 A. & M. Zimmermann

**Zinc Oxide—**
Germany, 30 brls. M. Ashby, Ld.
Holland, 135 ,,

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## LIVERPOOL.

*Week ending June 23rd.*

**Acetic Acid—**
Rotterdam, 10 brls.

**Boracic Acid—**
Leghorn, 32 cks.

**Chemicals** (*otherwise undescribed.*)
Boston, 15 bxs. J. Cossels & Co.
Rotterdam, 25 cks.

**Colours—**
Ghent, 3 brls. J. T. Fletcher & Co.

**Cottonseed Oil—**
In transit, 65 pkgs. Lamport & Holt

**Cream of Tartar—**
Barcelona, 5 hds.
Tarragona, 8 pps.
Rotterdam, 8 cks.

**Dyestuffs—**

**Argols**
Bordeaux, 31 cks.

**Cochineal**
Gd. Canary, 16 bgs.
,, 5 Kuhner, Henderson & Co.

**Divi Divi**
Hamburg, 305 bgs.

**Extracts**
Bordeaux, 300 cks.
New York, 40 bxs.
Fiume, 204 brls. Miller's Tanning Extract Co.

**Fustic**
Colon, 449 pcs. A. Dobell & Co.

**Saffron**
Valencia, 1 cs.

**Sumac**
Palermo, 900 bgs.

**Valonia**
Smyrna, 150 t.
Patras, 726 bgs. C. G. Papayanni & Jeremias
Constantinople, 1,326 bgs.
Alexandria, 72 bgs. G. H. Fletcher & Co.

**Farina—**
Hamburg, 3 bgs.

**French Chalk—**
Leghorn, 7 cs.

**Glucose—**
New York, 98 brls.

**Glycerine—**
Marseilles, 3 dms. R. J. Francis & Co.

**Manganese—**
Coquimbo, 994 t.
Hamburg, 1 ck.

**Mineral White—**
Trieste, 50 bgs. W. Pozze

**Paint—**
Boston, 46 cs.

**Potash—**
Stettin, 92 cks.

**Potassium Carbonate—**
Hamburg, 2 cks.

**Pyrites—**
Huelva, 1,640 t. Matheson & Co.
,, 1,670 Tennants & Co.
,, 2,012

**Salt—**
Hamburg, 1 cs.

**Saltpetre—**
Hamburg, 22 cks.

**Soap—**
Boston, 4 cs. J. Thompson
New York, 450 brls. Simmonds, Hunt & Co.
Constantinople, 1 bg.
Philadelphia, 1,100 bxs.
New Orleans, 2,190 brls.
Naples, 38 cs. P. Behrends
,, 179 A. Auverny & Co.
Marseilles, 10 J. J. Dobson

**Soapstone—**
Bordeaux, 25 bgs.
Genoa, 508

**Soda—**
Rotterdam, 2 cks.

**Sodium Silicate—**
In transit, 40 cks.

**Stearine—**
Antwerp, 13 bgs.

**Sulphur—**
Catania, 105 brls. 100 bgs. 100 t.

**Tallow—**
Boston, 2 hds. 107 brls.
New York, 200 200 968 tcs.
,, 20 Co-op. Wholesale Society, Ltd.
San Francisco, 500
Philadelphia, 60 tcs.
Oporto, 10
Newport News, 1,350

**Tartar—**
Bordeaux, 7 cks.

**Tartaric Acid—**
Rotterdam, 3 cks.

**Ultramarine—**
Bremerhaven, 8 cks.
Rotterdam, 8 cs.

**Verdigris—**
Bordeaux, 5 cks.

**White Lead—**
Antwerp, 8 cks.
Rotterdam, 27
Ghent, 5

**Zinc Oxide—**
Antwerp, 90 brls.

**Zinc White—**
Rotterdam, 50 cks. O. & H. Marcus

## GLASGOW.

*Week ending June 30th.*

**Acetate of Lime—**
New York, 352 bgs.

**Aluminium—**
Antwerp, 1 cs.

**Barytes Sulphate—**
Antwerp, 22 cks.

**Colours—**
Rotterdam, 3 cs. 5 bxs. 13 brls 2 cks. J. Rankine & Son
,, 20 cks. G. & J Boyd

**Cottonseed Oil—**
Rotterdam, 25 brls. J. Rankine & Son

**Cream of Tartar—**
Marseilles, 20 brls.
Rotterdam, 14 cks. J. Rankine & Son

**Dyestuffs—**
**Alizarine**
Rotterdam, 10 cks. J. Rankine & Son
**Extracts**
Marseilles, 23 brls.
Antwerp, 12 cks.

**Glucose—**
New York, 343 brls.

**Glycerine—**
Valencia, 110 dms.

**Ochre—**
Marseilles, 13 brls.
New York, 61

**Potash—**
Dunkirk, 16 dms. Martin, Perls & Co.

**Rosin—**
New York, 82 brls.

**Salicylic Acid—**
Hamburg, 1 cs.

**Soap—**
Marseilles, 2 cs.

**Soda—**
Rotterdam, 16 cks. J. Rankine & Son

**Verdigris—**
Marseilles, 1 brl.

**Waste Salt—**
Hamburg, 610 bgs.

**White Lead—**
Rotterdam, 42 cks. J. Rankine & Son

**Zinc Oxide—**
Rotterdam, 15 cks. J. Rankine & Son

**Zinc White—**
Rotterdam, 300 cks. J. Rankine & Son

## HULL.

*Week ending June 25th.*

**Barytes—**
Antwerp, 29 cks. Bailey & Leetham
Bremen, 20 Blundell, Spence & Co.
,, 61

**Caoutchouc—**
Hamburg, 1 cs. C. M. Lofthouse & Co.

**Chemicals** (*otherwise undescribed*)
Bremen, 13 cks. Veltmann & Co.
,, 1 Woodhouse Bros.
Stettin, 2
Antwerp, 112 pkgs. Wilson, Sons & Co., Ltd.
,, 1 ck.
Dunkirk, 1 brl. ,,

**Colours—**
Rotterdam, 4 pks. 14 cks. G. Lawson & Sons
Ghent, 28 cks.
Riga, 108 Wilson, Sons & Co., Ld.
Antwerp, 60 Bailey & Leetham
,, 1 cs. Blundell, Spence & Co.
Rotterdam, 1 cs. 4 50 pks. W. & C. L. Ringrose
,, 8 Hutchinson & Son
Hamburg, 1 5 pks. G. Lawson & Sons
Bremen, 1 J. Pyefinch & Co.
,, 20 cks. Sissons, Bros. & Co.
,, 5
Stettin, 1 Wilson, Sons & Co., Ld.
,, 8
Flushing, 16 164 Zeeland S. S. Co.

**Cream of Tartar—**
Rotterdam, 4 cks. Hutchinson & Son

**Cryolite—**
Copenhagen, 2 cks. Wilson, Sons & Co., Ld.

**Dyestuffs—**
**Alizarine**
Rotterdam, 39 pks. W. & C. L. Ringrose
,, 10 brls. Hutchinson & Son
**Annatto**
New York, 25 bgs. Wilson, Sons & Co., Ld.

**Madder**
Rotterdam, 2 cks. Hutchinson & Son
**Myrabolams**
Bombay, 2,978 bgs.
Hamburg, 1

**Farina—**
Ghent, 170 bxs. Wilson, Sons & Co., Ld.
Stettin, 300 bgs. ,,
Harlingen, 200 bls.
Hamburg, 20 bgs. ,,
,, 100

**Glucose—**
New York, 125 brls. Wilson, Sons & Co, Ld.

**Glycerine—**
Hamburg, 10 cs. C. M. Lofthouse & Co.

**Manganese—**
Rotterdam, 67 cks. Furley & Co.

**Manure—**
Ghent, 100 t. 102 bgs.

**Ochre—**
Rouen, 32 cks.
,, 16 Rawson & Robinson

**Paint—**
Antwerp, 23 dms. Blundell, Spence & Co.

**Phosphate of Soda—**
Rotterdam, 8 cks. Hutchinson & Son

**Pitch—**
Stettin, 2 cks. Wilson, Sons & Co., Ld.

**Plumbago—**
Hamburg, 31 cks. Wilson, Sons & Co., Ld.

**Soap—**
Christiania, 1 bx Wilson, Sons & Co., Ld.

**Tallow—**
New York, 50 hds. Wilson, Sons & Co., Ld.

**Tar—**
Uleaborg, 3 brls. J. Good & Sons
,, 600 200 hf.-brls.

**Tartaric Acid—**
Rotterdam, 6 cks. G. Lawson & Sons
,, 4
,, 4 Hutchinson & Son

**Ultramarine—**
Rotterdam, 1 cs. 2 cks. Hutchinson & Son
,, 8 W. R. Todd & Sons

**Varnish—**
New York, 3 brls. Wilson, Sons & Co., Ld.
Antwerp, 1 ck. ,,

**White Lead—**
Rotterdam, 20 cks. Hanger, Watson & Harris
,, 23 Sissons Bros. & Co.
Antwerp, 30 Bailey & Leetham
Rotterdam, 11 G. Lawson & Sons

**Zinc Oxide—**
Rotterdam, 25 cks. W. & C. L Ringrose

## TYNE.

*Week ending June 25th.*

**Barytes—**
Antwerp, 68 bgs. Tyne S. S. Co.

**Colours—**
Hamburg, 2 cks. Tyne S. S. Co.

**Cryolite—**
Copenhagen, 1 ck.

**Glucose—**
New York, 109 Furness, Withy & Co.

**Phosphate—**
Antwerp, 215 tns.

**Salt—**
Harburg, 280 tns. Clephens & Wiencke

**Saltpetre—**
Hamburg, 4 cks. Tyne S. S. Co.

**Sulphur—**
Pomaron, 1,200 tns. Mason & Barry
Huelva, 1,783 Scott Bros

**Zinc Oxide—**
Antwerp, 10 brls Tyne S. S. Co.

## GOOLE.

*Week ending June 8th.*

**Ammonium Chloride—**
Rotterdam, 19 cks.

**Antimony—**
Boulogne, 1 ck

**Caoutchouc—**
Boulogne, 6 cks.

**Chemicals** (*otherwise undescribed*)
Rotterdam. 2 cks.

**Chloride of Sulphur—**
Rotterdam, 34 balloons

**Dyestuffs** (*otherwise undescribed*)
Boulogne, 47 cks. 5 cs. 36 pkgs.
**Extracts**
Rotterdam, 17 brls.

**Phosphate—**
Ghent, 816 bgs.

**Potash—**
Calais. 38 dms.
Dunkirk, 30 60 cks.

**Saltpetre—**
Rotterdam, 100 bgs.

**Waste Salt—**
Hamburg, 813 bgs. 240 tns. 450 cks.

**Zinc Oxide—**
Antwerp, 30 brls.

## GRIMSBY.

*Week ending June 13th.*

**Caoutchouc—**
Hamburg, 2 pkgs.

**Chemicals** (*otherwise undescribed*)
Hamburg, 6 pkgs.

**Dyestuffs** (*otherwise undescribed*)
Dieppe, 2 cs.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending June 29th.*

**Acetic Acid—**
Newcastle, 1 t. 6 c. £30

**Acids—**
Christiania, 1 ck. £12

**Alkali—**
Vancouver, 10 c. £4

**Ammonia—**
Mauritius, 22 pkgs. £21

**Ammonium Carbonate—**
St. Petersburg, 17 . 10 c. £447
Bordeanx, 5 cs. 24

**Ammonium Chloride—**
Seville, 10 c. £18
Bagdad, 5 brls. 12
Hamburg, 17 cks. 96
Trebizonde, 5 24

**Ammonium Nitrate—**
Algoa Bay, 4 t. 9 c. £243

**Ammonium Sulphate—**
Auckland, 100 t. £1,350
Hamburg, 30 300
Cologne, 26 10 c. 265
Dunkirk, 10 4 105
Samarang, 610 10 6,252

**Amorphous Phosphorus—**
Hong Kong, 4 cs. £58
Ghent, 2 29

**Anhydrous Sulphurous Oxide—**
Melbourne, 5 cs. £58

**Bisulphide of Carbon—**
Amsterdam, 1 t. 3 c. £18

**Borax—**
Melbourne, 1 t. £31
Sydney, 9 pkgs. 24
Flushing, 5 c. 11
Veile, Jutland, 16 43
Ostend, 8 cks. 61
Rotterdam, 1 8 27
Hamburg, 8 69

**Carbolic Acid—**
Algoa Bay, 6 cs. £19
Yokohama, 3 t. 5 c. 135
Paris, 10 cks. 16
Rouen, 15 10
Treport, 50 74

**Caustic Soda—**
Port Elizabeth, 4 c. £5
Bremen, 15 t. 19 168
Fremantle, 2 84

**Chemicals** (*otherwise undescribed*)
Cape Town, 6 pkgs. £37
Algoa Bay, 24 5 cs. 48
Adelaide, 2 cks. 12
Natal, 28 pkgs. 2 103
Coquimbo, 5 17
Madrid, 9 136
Huelva, 9 18

**Citric Acid—**
Calcutta, 1 cs. £15
Rotterdam, 2 c. 16
Hamburg, 1 t. 18 1 kg. 332
Lyttelton, 2 17
Libau, 10 83
Karachi, 2 cs. 7
Bilbao, 5 cks. 207
Lisbon, 3 23
Copenhagen, 6 48
Yokohama, 1 t. 157

**Coal Products—**

**Alizarine**
Bombay, 20 cks. £70

**Aniline**
Boulogne, 1 ck. £51
Barcelona, 1 cs. 27

**Aniline Oil**
Rotterdam, 23 dms. £800

**Aniline Salts**
Genoa, 10 rnlts. £80
Leghorn, 5 40

**Anthracene**
Rotterdam, 49 cks. £340
Dusseldorf, 547 4,395
Cologne, 208 1,106

**Benzol**
Calais, 16 cks. £135
Philadelphia, 20 drs. 237
Rotterdam, 55 23 dms. 992
Hamburg, 8 105

**Creosote**
Legan, 50 brls. £30

**Creosote Oil**
Treport, 108 brls. £200

**Creosote Salts**
Antwerp, 1495 bags. £169

**Naphtha**
Le Treport, 37 cks. £86
Treport, 30 brls. 70

**Naphthalene**
Hamburg, 107 pkgs. £54

**Nitro-Naphthalene**
Cologne, 2 cks. £14

**Pitch**
New York 500 cks. £258
Dunkirk, 192 t 288
Sydney, 20 brls. 20
Constantinople, 200 brls. 80
Ibrail, 85 cks. 85
Galatz, 200 brls. 30 cks. 74

**Pyridine Bases**
Rotterdam, 12 cks £105

**Tar**
Melbourne, 20 brls. £19
Danzig, 500 220
St. John's N.F. 100 pkgs. 57
Sydney, 150 32
Legan, 250 brls. 120
Helsingfors, 459 227
Sulina, 15 cks. 9
Galatz, 55 rnlts. 27
Ibrail, 180 cks. 48

**Tar Oil**
Marseilles, 100 cks. £50

**Copperas—**
Bagdad, 30 brls. £16

**Copper Sulphate—**
Paris, 10 t. £160
Bordeaux, 14 224
Odessa, 14 3 c. 206
Ghent, 9 5 135
Newcastle, 1 16
Lisbon, 5 73
Algoa Bay, 1 17

**Cream of Tartar—**
Melbourne, 2 t. 10 c. £221
Cape Town, 2 11
Lyttleton, 1 95
Auckland, 1 90
Sydney, 2 190
Newcastle, 13 66

**Disinfectants—**
Cape Town, 22 drs. £24
Port Elizabeth, 15 pkgs. 20
San Francisco, 75 drs. 2 cs. 53
Berbice, 3 cks. 13
St. Petersburg, 30 pkgs. 33
Hong Kong, 3 cs. 14
Penang, 100 drs. 35
Sydney, 8 cks. 55 cs. 15 pkgs. 187
Jamaica, 25 18

**Flowers of Sulphur—**
Newcastle, 2 t. £22

**Glycerine—**
Shangai, 5 c. £17
Constantinople, 1 9
Bombay, 5 12

**Manure—**
Lyttleton, 110 t. £600
New Plymouth, 20 85
Riga, 96 9 c. 275
Hamburg, 200 2,100
Morlaix, 119 952
Salobrena, 365 3 3,285
Sydney, 10 150
St. Kitts, 28 294
Cullera, 690 19 5,528
Libau, 687 5 1,764

**Muriatic Acid—**
Bombay, 6 c. £9

**Nitre Cake—**
Cleveland Bay, 10 t. 1 c. £25

**Nitric Acid—**
Bombay, 1 t. 2 c £49

**Oxalic Acid—**
Stettin, 5 t. 11 c. £160

**Phosphide of Calcium—**
Amsterdam, 1 cs. £17

**Phosphorus—**
Otago, 10 cs. £76
Lisbon, 1 c. 2 cs. 32

**Potash Crystals—**
Montreal, 2 cs. £22

**Potassium Bichromate—**
Wellington, 1 t. £50
Hong Kong, 4 c. 10
Rotterdam, 4 12 £190

**Potassium Carbonate—**
Bilbao, 1 ck. £11

**Potassium Chlorate—**
Hong Kong, 1 t. £66
Catania, 8 c. 25

**Potassium Cyanide—**
Yokohama, 2 cs. £10

**Potassium Nitrate—**
New York, 3 t. 8 c. £93

**Potassium Prussiate—**
Lisbon, 4 c. £19

**Precipitated Sulphur—**
New York, 1 ck. £13

**Salicylic Acid**
Adelaide, 1 cs. £27

**Salt Cake—**
Brunshausen, 115 t. £60

**Saltpetre—**
Adelaide, 1 t 5 c. £27
Rotterdam, 1 18 40
Melbourne, 3 65
Madeira, 8 10
Newcastle, 1 22
Savanilla, 1 17 41
Seville, 1 15 36
Sydney, 8 10 170
Piræus, 1 18 39

**Sheep Dip—**
Port Elizabeth, 100 drs. £21
San Francisco, 300 cs. 525
Calcutta, 149 drs. 32
Galveston, 100 cs. 175
Melbourne, 200 drs. 167
Wellington, 18 cks. 114
Brisbane, 75 drs. 59

**Soda—**
Sydney, 3 t. £23
Melbourne, 2 15
Port Elizabeth, 2 8
Philadelphia, 10 25
Cape Town, 3 7 c. 12

**Soda Crystals—**
Sydney, 20 t. £67
Cape Town, 2 8
Newcastle, 31 109
Trinidad, 16 c. 3

**Soda Salts—**
New York, 1 t. 17 c. £19

**Sodium Bicarbonate—**
Canterbury, 1 t. £8
Sydney, 1 7

**Sodium Salicylate—**
Melbourne, 1 c. £31

**Sodium Silicate—**
Auckland, 5 t. 3 c. £31

**Sodium Sulphate—**
Ghent, 60 t. £90

**Sulphur—**
Cape Town, 225 cks. 125 kgs. £304
E. London, 80 36

**Sulphuric Acid—**
Bombay, 18 c. £23

**Superphosphate—**
Pasages, 9 t. 18 c. £30
Riga, 460 17 1,383

**Tartaric Acid—**
Melbourne, 10 c. £56
Sydney, 10 kgs. 63
Lyttelton, 5 30
Adelaide, 3 14
B. Ayres, 1 t. 2 123
Hamburg, 3 brls. 2 cks. 84
Newcastle, 3 3 pkgs. 38

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## LIVERPOOL.

*Week ending June 29th.*

**Alum—**
Gijon, 1 t. £5
B. Ayres, 4 2 c. 22
Bombay, 9 6 50
Galatz, 1 5 9
Calcutta, 40 4 201
Naples, 1 5
Lisbon, 3 10 21
Carril, 1 1 5
Smyrna, 6 14 35
Havana,

**Alum Cake—**
Havana. 5 t. 17 c. £30

**Alumina Sulphate—**
Vigo, 2 t. 16 c. £15

**Aluminous Cake—**
Calcutta, 16 t. 1 c. 2 q. £47

**Ammonia—**
Teneriffe, 10 c. 1 q. £12

**Ammonium Carbonate—**
Gijon, 3 c. £5
Gothenburg, 5 1 q. 9
Carril, 5 8
Antwerp, 5 2 150

**Ammonium Chloride—**
New York, 19 t. 7 c. £567
Barcelona, 3 5 107
St John's, N.B., 10 12
Gijon, 3 5
Montreal, 5 8
Malaga, 4 6
Matanzas, 2 3 q. 5
Malta, 4 7
Iquique, 5 10
Valparaiso, 18 28
Philadelphia, 13 1 1 319
Odessa, 4 6 143
Galatz, 10 17

**Ammonium Nitrate—**
Santander, 2 c. £6

**Ammonium Sulphate—**
Demerara, 15 t. 3 c. £163
Odessa, 202 16 1 q. 2,054
Cheribon, 58 6 2 582
Barbadoes, 10 3 108
Gr. Canary, 11 18 3 121
Valencia, 119 4 1,202

**Barytes—**
San Francisco, 17 t. 5 c. £45

**Bleaching Powder—**
Baltimore, 315 cks.
Bombay, 7
Boston, 493
Calcutta, 105 17 cs.
Lisbon, 29
Malaga, 5 brls.
New York, 136
Oporto, 51
Philadelphia, 169
Rouen, 14
San Francisco, 81
Syra, 10
Bari, 4 20 kgs.
Carril, 5
Genoa, 67
Leghorn, 39
Montreal, 43
Venice, 10

**Boracic Acid—**
Havre, 5 t. 1 c. 2 q. £201
Sydney, 1 10 61

**Borate of Lime—**
Rotterdam, 13 t. 1 c. 1 q. £319

**Borax—**
Corunna, 5 c. 3 q. £8
Oporto, 10 1 10
Matanzas, 5 cks. 41
Hamburg, 18 147
Gothenburg, 3 34
Dunedin, 2 17
Ferrol, 2 16
Rouen, 11 t. 1 384
B. Ayres, 19 3 100 cs. 108
Antwerp, 13 2 396
Amsterdam, 3
Rotterdam, 12

**Calcium Chloride—**
Sydney, 5 t. 4 c. £12
Napier, 15 34
Penang, 3 3 7
New York, 11 24

**Carbolic Acid—**
Barcelona, 5 t. 5 c. £140
Toronto, 2 cks. 11
Calcutta, 2 cs. 10
Vera Cruz, 1 5
New York, 12 5 1 q. 493

**Caustic Potash—**
Chicago, 2 t. 17 c. £65
Dunedin, 2 3 72
New York, 9 14 216

**Caustic Soda—**
Alexandria, 50 dms. 12 brls.
Alicante, 92
Barcelona, 35 31
Bari, 373
Bilboa, 180
Columbus, 50
Galatz, 110 10 kgs.
Madrid, 10
New York, 200
Pasages, 60
Paysandu, 100
Puerto Cabello, 29 32 bxs.
Rio de Janeiro, 7
St. John's, N.F., 6 pkgs.
San Sebastian, 60
Seville, 20 25 brls.
Tarragona, 30
Varna, 10
Vera Cruz, 85
Ancona, 78
Bombay, 13
Boston, 200
Cartagena, 75 35
Ceara, 20
Corunna, 16 48
E. London, 14
Genoa, 18
Hamburg, 274
Ibrail, 23
Leghorn, 107
Lisbon, 5 36 5 cks.
Malaga, 15 80 8
Maracaibo, 10
Messina, 40
Montreal, 100
Penang, 10
Porto Alegre, 45
Rio Grande, 33
Samarang, 10
Santander, 20
Savanilla, 10
Smyrna, 10
Tunis, 5
Valencia, 32
Valparaiso, 50
Vigo, 6 6

**Chemicals** (*otherwise undescribed*)
Odessa, 19 c. 1 q. £30
New Fairwater, 2 t. 10 85
Bari, 10 18
Genoa, 1 ck. 26 kgs. 50
Maranham, 19 1 88
Odessa, 1 10 50

**Citric Acid—**
Carril, 4 c. £32

**Copperas—**
Piræus, 15 t. 8 c. £30
San Francisco, 25 55
Santos, 3 16 3 q. 9
Alexandria, 65 295
Syra, 3 7
Smyrna, 14 1 3 32
Constantinople, 3 7 7
Almeria, 35 cks. 10

**Copper Sulphate—**
Naples, 2 t. 16 c 1 q. £43
Bilbao, 10 2 8
Valencia, 19 3 16
Galatz, 8 6
Oporto, 2 3 33
Trieste, 1 17 3 30
Tarragona, 5 15 1 115
Rouen, 5 6 80
Almeria, 1 2 2 15
Gothenburg, 2 30
Palermo, 6 5 95
B. Ayres, 5 2 79
Bordeaux, 14 19 2 240
Antwerp, 5 18 2 92
Amapala, 16 3 13
Ancona, 5 2 75
Rotterdam, 3 44
Fiume, 30 2 465
Batoum, 5 77
Ghent, 56 12 878
Lisbon, 7 1 3 107
M. Video, 6 4 2 96
Venice, 10 2 3 151
Algiers, 9 17 2 148
San Francisco, 5 1 79
Marseilles, 4 19 72

**Cream of Tartar—**
Halifax, 5 cks. £310
" 5 10 c. 2 q. 356

**Dried Blood—**
Leghorn, 66 t. 1 q. £404
Las Palmas, 10 3 64

**Flowers of Sulphur—**
Natal, 10 c. £10
Rio de Janeiro, 4 3 q. 3

**Glycerine—**
Rotterdam, 15 t. £388

**Gypsum—**
New York, 35 t. 14 c. £127

**Iron Sulphate—**
Almeria, 35 brls. £15

**Lead Acetate—**
Palermo, 6 c. £9

**Manganese—**
Baltimore, 25 t.
B. Ayres, 10 c.
Rouen, 6 50

**Magnesia—**
Baltimore, 5 cs.

**Magnesium Citrate—**
M. Video, 4 cks.

**Mangnesium Sulphate—**
Callao, 8 kgs.
Alexandria, 200

**Manure—**
Valencia, 44 t. £274
Las Palmas, 2 21

**Nitrate of Lead—**
Genoa, 9 c. 1 q. £10

**Oxalic Acid—**
Palermo, 5 c. £7
San Francisco, 5 t. 11 150
Trieste, 2 3 3 q. 61

**Paint—**
Alexandria, 43 dms.
Beyrout, 4 cks.
Brass, 1 2 cs.
Candia, 3 brls.
Canea, 2
Cape Town, 6 kgs. 2
Forcados, 1
Humacao, 1
Ibrail, 4
Iloilo, 11
Kingston, Jam., 31 220
Lisbon, 13 95 8 dms.
Madras, 3
Manilla, 29
Mayaquez, 4
M. Video, 6 19 1
Montreal, 6 134 50 1
Ottawa, 15
Para, 5 11 80
Piræus, 1
Port Natal, 30
Rio de Janeiro, 63
Rio Grande, 7
Rotterdam, 2
Rouen, 10
St. John's, N.B., 3 9
St. John's, N.F., 9 75
St. Thomas, W.I., 100
Salaora, 1 tc.
Salonica, 2 150
Santos, 5 10
Smyrna, 60
Toronto, 7
Trieste, 38 1
Valparaiso, 20 54
Vancouver, B.C., 2 5
Amsterdam, 3
Bilbao, 1 75
Carril, 40
Cephalonia, 3
Colon, 7
Hamburg, 8
Malaga, 5
Mollendo, 3 25 7
Pernambuco, 15
Philadelphia, 20
Ponce, 2 1
Santa Catherina, 90
Santander, 25 8
Vigo, 25
Zante, 7 2

**Painters' Colours—**
Bombay, 65 kgs. 27 cs.
B. Ayres, 1 ck. 145 39 brls.
Calcutta, 50
E. London, 1 5
Havre, 8
N. Orleans, 2
New York, 15 1 100
Boston, 150
Curacao, 30
Gibraltar, 1 30
Gothenburg, 100 bgs.

**Phosphorus—**
M. Video, 4 cks. £44
Hiogo, 20 cs. 235
Shanghai, 10 62

**Picric Acid—**
New York, 1 t. 2 c. 2 q. £110

**Pitch—**
Callao, 10 brls.
Valparaiso, 15

**Potash—**
Hamburg, 8 c. 3 q. £21

**Potassium Carbonate—**
New York, 8 t. 18 c. £176

**Potassium Chlorate—**
Corunna, 10 c. £28
Shanghai, 11 t. 14 1 q. 667
Genoa, 1 47
Buenos Ayres, 2 10 115
Carril, 16 45
Pasages, 10 30
Antwerp, 7 5 332
Rio de Janeiro, 6 19
Rotterdam, 2 94
New Fairwater, 2 10 130
St. Petersburg, 12 10 621
Hiogo, 10 486
Hong Kong, 1 10 68
New York, 7 451
Vera Cruz, 2 11

**Potassium Prussiate—**
Montreal, 5 c. £23

**Salt—**
Accra, 10 t.
Amsterdam, 108
Antwerp, 70
Archangel, 250
Boston, 778
Calcutta, 11,218
Cameroons, 96 14 c.
C. C. Castle, 13¾
Hammerfest, 225
Kingston, Jam., 5
Lagos, 400
Monte Video, 7½
Montreal, 888
Newcastle, N.S.W., 200 t.
New Orleans, 500 t.
New York, 280
Philadelphia, 50
Rotterdam, 84
St. John's, N.B., 75
" Nfld., 5
St. Lucia, 5
San Francisco, 322 19
Trinidad, 33
Baltimore, 26
Bonny, 10
Brass, 100
Buenos Ayres, 50
Cape Lopez, 13½
Cape Town, 30
East London, 71 8
Faroe Isle, 95
Gaboon, 9
Ghent, 152
Iceland, 321
Landana, 5
Melbourne, 50
Port Natal, 5
Santa Catherina, 16
Shediac, 450
Sherbro, 100
Sydney, 250
Talcahuano, 801
Terebeaski, 450
Valparaiso, 48 4

**Salt Cake—**
Philadelphia, 100 t. 9 c. £250
Kokomo, 149 16 371
Adelaide, 83 brls.

**Saltpetre—**
Havana, 18 c. £20
Pernambuco, 2 t. 10 56
Gijon, 15 15
Barcelona, 6 5 126
Natal, 10 11
Las Palmas, 2 42
Pernambuco, 4 7 2 q. 101
Buenos Ayres, 9 3 13

**Salts of Soda—**
New York, 3 t. 7 c. £35

**Sheep Dip—**
Sydney, 7 cs £30
Buenos Ayres, 10 t. 30 cks. 800 dms. £865
Baltimore, 10 65
East London, 3 t. 15 c. 137

**Soap—**
Algoa Bay, 250 bxs. 12 cs.
Amsterdam, 50 500
Antwerp, 200 932
Barbadoes, 1,635
Bilbao, 1
Boston, 1 ck.
Cape Town, 161
Colon, 50
Constantinople, 10
Curacao, 275
Demerara, 209
East London, 50 10
Genoa, 300
Hamilton, 100
Madras, 11
New York, 200 110
Port Natal, 1,072
Rouen, 25
St. Croix, 125
Savanna-la-Mar, 115
Savanilla, 5
Tangiers, 10
Toronto, 500
Accra, 60
Alexandria, 16
Axim, 75
Barcelona, 200
Batanga, 50
Benin, 200
Bombay, 2
Bonny, 50
Cameroon, 170
Canaries, 263
Cape Lopez, 50
Gaboon, 290
Gibraltar, 100
Grand Bassa, 3 pkgs.
Grand Canary, 430
Hiogo, 300
Hong Kong, 430
Kokermun, 100
Lagos, 862
Lanzarote, 10
Las Palmas, 285
Loanda, 30
Malta, 56
Mussera, 25
Oporto, 1
Para, 100
Piræus, 86
Rangoon, 10
Rio del Rey, 50
St. John's, Nfld. 235 20
St. Lucia, 60
San Francisco, 3
Sette Cama, 100
Shanghai, 2,300
Singapore, 1,400
Teneriffe, 799
Trinidad, 1,000
Vera Cruz, 1

**Soda Alkali—**
Dunedin, 40 brls.
Havre, 21
Melbourne, 20
New York, 60
Odessa, 175
Varna, 30

**Soda Ash—**
Bahia, 150 brls.
Buenos Ayres, 21 cks.
Dunkirk, 20
Monte Video, 31
Montreal, 26 1,176 bgs
Philadelphia, 102 920
Rio de Janeiro, 85 50
Valparaiso, 140
Wellington, 43
Baltimore, 371 604
Bombay, 10
Boston, 400 12 2,640
Calcutta, 7
Hamilton, 600
Leghorn, 12
Melbourne, 167
Napanee, 12
New York, 829 115 cs. 7,000
Puerto Cabello, 20 brls.
Rio Grande, 25
San Francisco, 127
Sydney, 159
Yokohama, 132

**Soda Crystals—**
Bombay, 250 kgs.
Demerara, 30 brls.
Genoa, 20
New York, 140 140 cks.
St. John's, Nfld., 8
Belize, 10
Boston, 380
Brockville, 25
Buenos Ayres, 25
Calcutta, 80
Constantinople, 50
Galatz, 15
Iquique, 100
Malaga, 17
Seville, 25
Singapore, 6

**Sodium Arseniate—**
New York, 3 cks.

**Sodium Bi-arseniate—**
Bremen, 15 c.

**Sodium Biborate—**
Rio de Janeiro, 5 c. 1 q.

**Sodium Bicarbonate—**
Adelaide, 175 kgs.
Amsterdam, 50
Antwerp, 75 48 cks.
Barcelona, 285 50 brls
Bari, 50 10
Bombay, 102
Bordeaux, 60
Bremen, 7
East London, 20
Genoa, 45 10
Karachi, 325
Lisbon, 90
Malta, 1
Marseilles, 25
Melbourne, 504 6
Montreal, 100 15
Oporto, 60
St. John's, Nfld., 23
Santander, 30
Seville, 150 15 35
Sydney, 550 22
Trieste, 45
Valencia, 65
Venice, 50
Vera Cruz, 20
Yokohama, 150
Algoa Bay, 3 5
Bilbao, 40
Boston, 150
Brockville, 50
Cadiz, 20
Calcutta, 4
Cape Town, 20
Constantinople, 50
Halifax, N.G. 50
Hamburg, 4
Havre, 335
Nagasaki, 450
Newcastle, N.S.W., 40 kgs.
Rotterdam, 50

**Sodium Carbonate—**
Boston, 168 brls.

**Sodium Chlorate—**
Antwerp, 10 kgs
Hamburg, 20 5 brls.
Rotterdam, 20
Hiogo, 2 t. 10 c.

**Sodium Hyposulphite—**
Callao, 1 t. £11
**Sodium Nitrate—**
Almeria, 12 t. 6 c. 2 q. £100
Seville, 7 13 66
Las Palmas, 2 2 17
Malaga, 6 8 54
Almeria, 12 17 2 103
Valencia, 5 2 2 40
Malaga, 12 16 2 108
Bari, 3 16 2 32
**Sodium Silicate—**
Bilbao, 20 brls.
Alicante, 10 16 cks.
Barcelona, 33
Bilbao, 50
Cartagena, 20
Malta, 8
Oporto, 6
Sydney, 18
Valencia, 14
Vigo, 4
**Sodium Sulphate—**
Valencia, 18 t. 5 c. 2 q. £41
**Spent Oxide—**
Danzig, 259 t. 3 c. 3 q. £167
**Sulphur—**
Boston, 334 bgs. £260
Calcutta, 15 t. 85
Rio de Janeiro, 1 4 c. 2 q. 10
Santa Catherina, 1 7
**Sulphuric Acid—**
Boca, 1 t. £12
Colombo, 26 cs. 19
**Superphosphate—**
Grand Canary, 4 t. 1 q. £11
**Tallow—**
Cartagena, 14 cks.
Bilbao, 50 brls.
Boca, 1
Manilla, 15
San Sebastian, 91
Valencia, 12 dms.
**Tar—**
Coquimbo, 10½ brls.
**Tartaric Acid—**
Vigo, 2 c. £11
**Varnish—**
Antwerp, 2 cks. 1 cs.
Barcelona, 1
New York, 1 4 dms.
**White Lead—**
Ferrol, 12 brls.
**Zinc Chloride—**
Rio de Janeiro, 4 cks. £38
Oporto, 4 t. 2 c. 2 q. 80
Bombay, 12 2 195

## GLASGOW.

*Week ending June 30th.*

**Acetate of Lead—**
Montreal, 1 t. 1 c. £22. 15s.
**Alkali—**
Dunedin, 4 t. 16½ c. £60
**Ammonium Sulphate—**
Barbadoes, 4 t. 2¼ c. £60
Demerara, 81 10 834
**Benzol—**
Rotterdam, 35 dms. £333
**Bichrome—**
Dunedin, 1 t. 2¼ c. £47
**Bleaching Powder—**
Melbourne, 12 t. 9½ c. £105
**Borax—**
Seville, 2 t. 5½ c. £64
**Caustic Soda—**
Dunedin, 4 t. 19¾ c. £60
**Chloroform—**
Sydney,
Bombay, 2 c. £44 £21. 18s.
**Cobalt Matte—**
Rotterdam, 9 t. 19½ c. £500
**Creosote Oil—**
Adelaide, 5 t. £25
Norfolk, 746 1,950
Christiania, 25 brls. 11
**Dyestuffs—**
**Alizarine**
Dunedin, 1 t. 8 c. £181
**Argols**
Dunedin, 1 t. 17½ c. £28
**Cochineal**
Dunedin, 11 c. £60
**Extracts**
Montreal, £64
**Madder**
Dunedin, 13¼ c. £40
**Linseed Oil—**
Bombay, 4 t. £89
Demerara, 17 c. 20
Montreal, 4 19½ £87. 10s.
Dunedin, 23 7 £495
**Litharge—**
Montreal, 13 t. 7¾ c. £185
**Magnesium Sulphate**
Montreal, 11 t. 6 c. £33. 18s.
**Manure—**
Barbadoes, 50 t. £501
Demerara, 81 4 c. 644
Dunedin, 50 350
**Oxalic Acid—**
Boston, 9 t. 10 c. £275
**Paint—**
Adelaide, 1 t. 14 c. £42. 10s.
Chili. 12 5¼ £194
Peru, 6 13½ £149. 13s.
Alexandria, 1 10½ £20
**Painters' Colours—**
Demerara, 1 t. 10½ c. £41
New York, 2 6½ £55. 15s.
Dunedin, £1,236
**Paraffin Wax**
Dunedin, 7 t. 5 c. £240
**Pitch—**
Bombay, £65
Boston, 54 t. 5 c. 85
Quebec, 59 2½ 124
Dieppe, 560
**Potassium Bichromate—**
Boston, 9 t. ¼ c. £379
Rotterdam, 18 cks. 248
**Potassium Prussiate—**
Montreal, 5 c. £28
**Potassium Sulphate—**
Demerara, 3 t. 15½ c. £26. 13s.
**Rosin—**
Bombay, 4 t. 3¼ c. £23
**Rosin Oil—**
Rotterdam, 10 brls. £20
**Soap—**
Bombay, 3 t. 18½ c. £56
Dunedin, 12 21
**Soda Ash—**
Dunedin, 5 t. 14¾ c. £34
**Tallow—**
Rotterdam, 4 t. 7¼ c. £158
**Tar—**
Bombay, 81 rnlts £32
**Tartar—**
Dunedin, 7½ c. £31
**Turpentine—**
Chili, 1 t. 6¼ c. £35
**Varnish—**
New York, 3 doz. pints £3. 10s.
Stavanger, 4 brls. £5
**White Lead—**
Rio de Janeiro, 30 ts. £28
Montreal, 25 ts. 19 c. 429
Seville, 2 4¾ 35
**Zinc White—**
Rio de Janeiro, 2½ t. £50

## HULL.

*Week ending June 25th.*

**Alkali—**
Stettin, 20 kgs.
**Bleaching Powder—**
Boston, 147 cks.
Stettin, 15
**Caustic Soda—**
Konigsberg, 52 dms.
Libau, 35
Odessa, 385
Riga, 108
Reval, 30 cks.
Stettin, 36
Wyburg, 80
**Chemicals** *(otherwise undescribed)*
Amsterdam, 2 cs. 25 cks.
Antwerp, 11
Copenhagen, 20 4 131 tcs.
Christiania, 21 6 966 slbs.
Constantinople, 35
Gothenburg, 20 31 15 pkgs.
Hamburg, 219 10
Odessa, 1 4
Riga, 29 310 kgs.
Rotterdam, 40 61
Stettin, 7
Wyburg, 7
**Cottonseed Oil—**
Amsterdam, 36 c.
Antwerp, 99
Bremen, 100
Bordeaux, 368
Flushing, 34
Hamburg, 221
Rotterdam, 2,048
Stettin, 200
**Creosote—**
Gothenburg, 199 cks.
Odessa, 250 brls.
**Dyestuffs** *(otherwise undescribed)*
Christiania, 20 bgs.
**Linseed Oil—**
Bremen, 174 c.
Bergen, 11
Bordeaux, 54
Christiansand, 10
Christiansund, 53
Copenhagen, 23
Christiania, 474
Drontheim, 139
Hamburg, 171
Helsingfors, 703
Rotterdam, 51
Stavanger, 21
**Manure—**
Rotterdam, 500 bgs.
**Ochre—**
Antwerp, 3 cks.
**Paint—**
Hamburg, 1 cs.
**Painters' Colours—**
Amsterdam, 7 cks.
Antwerp, 33 4 cs. 15 pkgs.
Bordeaux, 25
Boston, 1
Christiansand, 42 kgs.
Copenhagen, 4 5
Christiania, 5 2 2 dms.
Gothenburg, 1 53
Hamburg, 23 1
Helsingfors, 1
Hong Kong, 280 kgs.
Hiogo. 300
New York, 40 150
Odessa, 665
Riga, 2
Rotterdam, 35 4
Stettin, 10
**Pitch—**
Antwerp, 236 tns.
Dunkirk, 53
**Soap—**
Christiania, 20 cs.
**Soda Ash—**
Hiogo, 75 cks.
**Tallow—**
Flushing, 5 cks.
Gothenburg, 5
Harlingen, 9
Rotterdam, 44
**Tar—**
Copenhagen, 13 cks.
Christiania, 10
Hamburg, 10
Helsingfors, 50
Rotterdam, 1
**Varnish—**
Amsterdam, 3 cks.
Antwerp, 1 2 cs. 1 dm.
Copenhagen, 2 2
Christiania, 1
Hamburg, 2
Rotterdam, 6

## TYNE.

*Week ending June 25th.*

**Alizarine—**
Genoa, 1 t. 3 c.
**Alkali—**
Rotterdam, 4 t. 3 c.
Copenhagen, 2 7
Gothenburg, 3 6
**Ammonia Salts—**
St. Petersburg, 14 t. 5 c
**Ammonium Sulphate—**
Genoa, 10 t.
**Antimony—**
Antwerp, 10 c.
Hamburg, 4 t.
New York, 22 10
Rotterdam, 8 10
Copenhagen, 10
**Barium Binoxide—**
Rouen, 10 t. 14 c.
**Barytes Carbonate—**
Hamburg, 100 t.
**Bleaching Powder—**
St. Petersburg, 117 t. 3 c.
Christiania, 9 16
Danzig, 67 13
Wyburg, 32 8
Aalborg, 10 18
Drontheim, 10 1
Rotterdam, 53 17
Genoa, 10 2
Rouen, 19
Gothenburg, 15 1
**Caustic Soda—**
Antwerp, 4 t. 12 c.
Hamburg, 1 9
St. Petersburg, 223 11
Christiania, 3 16
New York, 72 10
Danzig, 10 3
Wyburg, 46 1
Aalborg, 5 16
Rotterdam, 4 18
Genoa, 22 6
Rouen, 9 17
Copenhagen, 1 9
**Colours—**
Genoa, 2 t. 6 c.
**Copperas—**
Randers, 1 t. 8 c.
Copenhagen, 106
**Copper Sulphate—**
Wyburg, 10 c.
**Litharge—**
Hamburg, 1 t. 2 c.
New York, 1
Gothenburg, 2 10
**Magnesia—**
St. Petersburg, 1 t. 2 c.
Genoa, 1 3
**Nitrate of Baryta—**
Genoa, 6 c.
**Paint—**
Antwerp, 5 c.
Hamburg, 1 t. 3
New York, 4
Wyburg, 9
**Salt—**
Aalborg, 3 t. 7 c.
**Soda—**
Drontheim, 10 t. 3 c.
Genoa, 3 11
Wyburg, 12 17
**Soda Ash—**
Christiania, 10 t. 5 c.
Danzig, 10 3
Wyburg, 6 13
Aalborg, 5 4
Copenhagen, 2 14
Gothenburg, 76 6
**Sodium Hyposulphite—**
Aalborg, 5 t.
Genoa, 5 4 c.
**Sulphur—**
Rotterdam, 70 t.
**Tallow—**
Hamburg, 3 t. 13 c.
**Tar—**
Riga, 49 t. 19 c.
Wyburg, 128 14
**White Lead—**
Gothenburg, 1 t. 5 c.

## GOOLE.

*Week ending June 28th.*

**Chemicals** *(otherwise undescribed)*
Ghent, 2 dms.
Hamburg, 16
Rotterdam, 11 cks.
**Coal Products** *(otherwise undesc'd.)*
Rotterdam, 138 cks.
**Dyestuffs** *(otherwise undescribed)*
Boulogne, 5 cs.
Ghent, 1 ck. 1 4 dms. 10 tns.
Hamburg, 21 66 pkgs.
Rotterdam, 2
**Pitch—**
Antwerp, 575 tns.

## GRIMSBY.

*Week ending June 13th.*

**Chemicals** *(otherwise undescribed)*
Dieppe, 24 pkgs.
Hamburg, 201 85 cks.
**Coal Products** *(otherwise undesc'd.)*
Dieppe, 54 cks.

# PRICES CURRENT.

WEDNESDAY, JULY 6th, 1892

PREPARED BY HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

*The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids:—** | | | | |
| Acetic, 25 %, and 40 % | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | 50/- | | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 %) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ( ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 11 | 15 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| ,, ,, (medium qualities) | ,, | 4 | 5 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, ·880 = 28° | per lb. | 0 | 0 | 3 |
| ,, = 24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 9 | 17 | 6 |
| ,, ,, (grey) Hull | ,, | 9 | 16 | 3 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 2 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes:—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8¾ |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 10½ |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 8½ |
| ,, 50/90 ,, | ,, | 0 | 1 | 3½ |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 4⅞ |
| ,, (crude 60°) | per gallon | 0 | 1 | 1½ |
| Creosote (ordinary) | ,, | 0 | 0 | 1 |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 0 | 11 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 44 | 13 | 9 |
| ,, Sulphate | ,, | 15 | 5 | 0 |
| ,, Oxide (copper scales) | ,, | 45 | 0 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 45 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 17 | 6 |
| ,, Litharge Flake (ex ship) | ,, | 14 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, ( brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 5 | 17 | 6 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 4 | 3 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 4 | 0 |
| **Oils:—** | | | | |
| Cotton-seed | per ton | 19 | 15 | 0 |
| Linseed | ,, | 20 | 5 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 6½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 10 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 10 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 10 | 0 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 9½ |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 7 | 17 | 6 |
| Silver (metal) | per oz. | 0 | 3 | 4½ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 7 | 6 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 6 | 5 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 16 | 5 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8 |
| ,, Borate (Borax) | nett, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | nett pr. ton 10 ton lots | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 15 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 4½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¾ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 16 | 6 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7½ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7¾ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 5 | 0 |
| ,, Brimstone: Best Quality (nominal) | ,, | 5 | 0 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 27 | 0 | 0 |
| Tin (English Ingots) | ,, | 101 | 10 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 21 | 15 | 0 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# CHEMICAL TRADE JOURNAL

AND

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rtisements intended for insertion in the current week's issue reach the office by **Wednesday morning** at the latest.

## BILLS AND ACTS.

ANY Bill that has been run through Parliament and passed into law is upon its completion liable, and likely, to be looked upon in several different ways. Those who have had charge of the Bill during its passage through both Houses will no doubt "thank Heaven" that "that measure is out of the way"; those who clamoured for action will perhaps be satisfied with the sop that has been thrown to them; those whose interests are involved will most probably wonder why their affairs have been selected of all others for legislative interference; while those who have managed to escape the net will congratulate themselves upon the importance of their influence, and perhaps they have reason for so doing.

The report of the Chief Inspector under the Alkali Acts, before us as we write, has suggested the foregoing thoughts, and the truth of them may be found in the elaborate reports, not only of the inspector himself, but also of the sub and assistant inspectors. Ever since the establishment of this journal we have endeavoured to draw public attention to the fact that it is not the blackness of black smoke that is the destroying element; it is the sulphurous acid which all smoke contains, and which sooner or later will have to be combated in some form or another.

The report shows us clearly how it is that the atmosphere of manufacturing towns is so much more deleterious to vegetation than that of residential towns. Widnes and St. Helens are too well known to require description. In the latter town over a million tons of coal are burned annually, this, too, over a comparatively small area, while only a quarter more is burned in the London area of many times larger acreage. As a matter of fact, the coal consumed in St. Helens yields 15,600 tons of sulphur annually, all of which is sent out into the air, most of it to be washed down with the first rain shower or to kill the leaves of such of our trees upon which it may chance to alight. London may be said to be similarly sulphurised. This is a fact which should not be lost sight of by our sanitators. Any congregation of mills where coal is burned must do damage to vegetation *pro rata* with the coal burned. Every report that has been issued from this department has brought this fact to the front, and the present report abounds in instances where sulphurous acid is the *bête noire* to be chained up, yet we have the unsatisfactory spectacle of seeing a new Bill rushed through both Houses of the legislature with the two greatest offenders conspicuous by their absence.

The report before us should have been before both Houses before the Bill passed through its final stages at least, but the very fact of its passing into law is *prima facie* proof that no interested member could have perused it. Dr. Affleck tells us that copper works are increasing, and the gases are very acid, later on he says this high sulphurous acidity must be dealt with. On page 81 it would appear that one copper works at least was capable of being carried on in a satisfactory manner, and if one why not all?

There is another point that requires attention on the part of the Chief Inspector, and that is the method of dealing with sulphuretted hydrogen from the manufacture of sulphate of ammonia. It is not satisfactory to find one inspector reporting that the sulphuretted hydrogen burned and allowed to escape into the air "is far too large." The best practicable means clause should deal with this form of air pollution, and especially when it is stated that nearly one-half of the sulphuretted hydrogen dealt with in this manner belongs to a large London Gas Company. Why should such a source of air pollution be allowed to continue when better means are known? On page 62 we are told that the Oldbury works arrest the sulphurous acid in a tower packed with limestone. Could not this also be done in London? We were astounded to learn that the exit flue in this case contained acid gases equal to 35 grains per cubic foot of sulphurous acid, or more than *eight times as much* as is allowed by law to be emitted in the manufacture of sulphuric acid.

To be of the utmost value to the manufacturer and to the sanitarian the report must be read in its entirety, nevertheless there are a few matters to which it may be desirable to call attention. The galvanizer's waste pickle, formerly sent into the sewers of the district, has been the subject of invention and research; simultaneously it has come under inspection—the usual case—when people do badly the Alkali Act leaves them alone, but when they begin to mend their ways the law steps in and looks after them. This leads us to the Public Health Act; there are many cases that do not come under the Alkali Act, but which are perfectly well defined under the Public Health Act, and first and foremost are fish and bone manure works. No one who has lived in the neighbourhood of one of these works would feel inclined to give them a clean bill of health. They are nauseous and noxious in the extreme, and if the local authorities did their duty they would call upon the owners to carry them on in a different way to what they are at present. It appears from the report, page 71, that in one case the local sanitary authority complained to the Alkali inspector of the existence of one of these nuisances, evidently not being aware that it had power to deal with it itself.

We learn on page 45 that in 1891 21,041 tons of sulphur were made from vat waste by the Claus process, in addition to the production of 10,400 tons of sulphuric acid of 123° Tw. from sulphuretted hydrogen, and that the Chance method of blowing off the inert gases during carbonation has been abandoned. Meters have also been given up, and even the gasholder is no longer considered indispensable.

Some little points of practice deserve to be noted. On page 29, in describing the difficulties of the Claus process, the *enormous* volume of gas is alluded to, and *five million* feet per 24 hours is given as its measure. It would no doubt surprise the writer of the report to hear that *one hundred* millions of cubic feet per day of nearly red-hot gases are dealt with in some of the works recovering by-products from blast furnaces.

On page 88 we learn that in one sulphate of ammonia works caustic soda is employed instead of lime, and this seems favourably regarded by the inspector reporting, at which we are surprised, for if one had no more wit than to use a ton of an article costing three hundred and forty shillings per ton instead of a ton and a quarter of lime at twelve shillings, the less said about it the better.

Saltworks seem kept below the limit allowed by the Act, we shall refer to this subject again shortly. The report as a whole is one of the most valuable of the series and should be studied by every manufacturer; and it would be well if before reading, the clerical error of 367,863 tons of salt decomposed, as shown on page 11, be amended to the correct figure of 567,863.

## THE RAPID ESTIMATION OF PHOSPHORIC ACID.

By C. E. Manby.

Before describing my method, allow me to explain, that since developing this process of titration of the phosphomolybdate with alkali, it has recently come to my notice that Dr. Hundeshagen was the first in publishing the practicability of titration with caustic soda, and, on the other hand, I have experimented in the same direction independently, not knowing that any publication existed, and naturally at this time I feel somewhat exposed to criticism, although my researches are original, and date back to 1886. It is not my intention to dispute priority or to solicit recognition, but merely to unearth an old process, with the object of raising discussions as to the merits of the alkali method.

Determinations of phosphorous in steel may now be accomplished within 40 minutes, thanks to Dr. Brown, Messrs. Emmerton, Jones, and others, for valuable suggestions regarding the rapid and complete oxidation with permanganate of potash and ultimate reduction of manganese dioxide by tartaric acid now superseded by ferrous sulphate, or, as I prefer, by a few drops of HCl, sufficient only to decompose the manganese dioxide by boiling, the nascent chlorine being also beneficial in hastening oxidation. Much depends upon the preparation of the molybdate reagent. After many experiments I find the following proportions give excellent results:

Take 100 gms. molybdenum trioxide, to which add 150 c.c. water, then into it stir well 100 c.c. concentrated ammonium hydroxide, then allow the excess of free ammonia to evaporate spontaneously, and lastly pour this solution into 1,500 c.c. of *cold* dilute nitric acid (1 acid to 2 water).

I have found it very convenient to keep a stock of carefully prepared "yellow precipitate" for standardizing the alkali, which is prepared as follows: Wash the precipitate free from reagents with 3 per cent. nitric acid, then redissolve with ammonium hydroxide (15 per cent.). Remove the filtrate, and boil off nearly the whole of the free ammonia, then add nitric acid (sp gr. 1.20); precipitate will form immediately; then evaporate to dryness in a porcelain dish, then place over the lamp to expel ammonium nitrate and free nitric acid, which may be distinctly observed, resembling the white fumes of sulphuric acid; the point of completion is noted by the fumes ceasing; there is no danger by over-heating during the fuming. Allow to cool off, and keep in a stoppered bottle for standardizing.

*Alkali.*—Take 6·6 gms. sodium hydroxide, dissolve and dilute with water to 1,000 c.c.; then 1 c.c. corresponds to ·0002 phosphorus (approximately), but when standardizing by the "yellow precipitate," the approximation becomes accurate by the addition of a little water.

*Acid.*—Take 10 c.c. nitric acid (1·42), and dilute to 1,000 c.c. Have ready two burettes graduated in $\frac{1}{10}$ with a capacity of 50 c.c., and proceed to make preliminary tests, so that 1 volume acid equals 1 volume alkali, using phenolphthalein as indicator. Start by knowing the acid to be the strongest, then one trial will show their relative values, and a calculation will show the exact amount of water required to reduce the acid to the same strength as the alkali, volume for volume.

*Standardizing.*—Weigh 0·2 gm. of prepared "yellow precipitate," and run in 20 c.c. of alkali, then add the indicator (the size of a pin's head), and stir well till dissolved; now titrate back till one drop destroys the pink, read off, and if it shows 3·7 c.c., then the strengths are correct, because 20—3·7 equals 16·3 or ·163 per cent. phosphorus. Now, supposing the alkali is too strong, and therefore shows 15·8 c.c., and this divided by 2=7·9; so that if 790 c.c. are measured off and filled up with water to 815 c.c., then the correction will be made exact with alkali. Likewise, take 790 c.c. of the acid and fill up with water to 815 c.c.; then volume equals volume, and 10 c.c. equals 10 per cent. phosphorus when employing two quantities, say 2 gms. of metal. Several checks may be made in a few minutes, merely for practice with the "yellow precipitate," and afterwards proceed to use the phosphorus taken from samples of metal, etc. The essential point, of course, before titration, is to have the "yellow precipitate" of constant composition, as previously described, and very little practice will enable one to obtain constant results which will not vary more than ·0005 per cent. phosphorus on 2 gms. of steel.

The following details may be resorted to in practice:

*For Steel*—Employ 2 gms., dissolve with 30 c.c. nitric acid (sp. gr. 1·20) in an Erlenmeyer flask; when the action has ceased, boil off the nitrous fumes completely, then oxidise, according to Shimer, with permanganate of potash (10 gms. to the litre). It will be found that 4 or

5 c.c. is sufficient to form a turbidity which remains permanent on boiling, and this turbidity is the point sought for, which must now be redissolved with several drops of hydrochloric acid until it clears up again by continuous boiling. When crystal clear, remove lamp, and allow to cool off sufficiently to neutralise with dilute ammonium hydroxide (1 water to 1 concentrated ammonia), until the ferric precipitate slowly dissolves. Be careful not to overreach this point of turbidity, because oxide of iron will invariably contaminate the "yellow precipitate," and consequently, when redissolved in ammonia, there is a liability of forming phosphate of iron, a very little of which will greatly vitiate the results of the old magnesia method, even in the presence of citric acid. If, however, neutralisation has been carried too far, more acid must be added to clear up the solution, but avoid more than 3 per cent. excess. Now warm up to somewhere near the boiling point, and add 50 c.c. of the molybdate reagent; then immediately shake up the flask for several seconds, and place on a sand bath for 5 minutes, and proceed to filter; wash the filter and the precipitate with 3 per cent. nitric acid, containing also 3 per cent. potassium nitrate, wash till free from iron and molybdate reagent; finally wash with 3 per cent. nitric acid alone, to remove most of the potassium nitrate. Lastly, dissolve "yellow precipitate" with dilute ammonia (15 per cent.) into a porcelain dish, using a few c.c. of hot water for the finish. Now proceed to boil off the excess of free ammonia, then remove from lamp and add 2 cc. nitric acid (sq. gr. 1·20), and the reformation of the "yellow precipitate" will be immediate and complete. Then evaporate to dryness very rapidly, after which raise the heat sufficiently to expel free nitric acid and ammonium nitrate as previously described.

*Pig Iron.*—Employ varying amounts, according to the grade, that is about 2 gms. for Bessemer and 0·5 gm. for common iron, and dissolve in 1·135 nitric acid, according to Drown. Lastly, proceed, after filtering in the same way as for steel, and oxidize with permanganate, as usual, but be more careful to have the solution after neutralizing perfectly clear with excess of nitric acid.

*Ores.*—Dissolve 2 to 4 gms. with hydrochloric acid, evaporate to dryness, take up with hydrochloric acid, dilute, and filter, then evaporate to a syrup, and add concentrated nitric acid to decompose the free hydrochloric acid. Lastly, dilute with water, boil and oxidize with plenty of permanganate and proceed as with steel.

The time required for determination of phosphorus in *steel* by the various methods is approximately as follows:

| | |
|---|---|
| Magnesia method .. .. .. | 4 hours. |
| Emmerton .. .. .. .. | 1½ ,, |
| Weighing "yellow precipitate" .. | 2 ,, |
| Alkali method .. .. .. .. | 40 minutes. |

I do not attempt to make any distinction as to the merit of one method over another, but merely, as Mr. Jones has wisely remarked, on comparative methods, that the "ultimate correction can only result from the product of the experience of many workers," and consequently I shall feel gratified if my attempts at an "incidental improvement" may result in a nearer approach to the standard method.—*Jour. Anal. App. Chem.*

## ANALYSIS OF ELECTRIC LAMP GLASS.

IN a paper read by Mr. D Woodman and published in the journal of the American Chemical Society, the author says that in the manufacture of Incandescent Lamps there is a certain percentage of loss due to what may be termed spontaneous breakage; lamps apparently well made, cracking at some part without having been subjected to any shock or blow.

A reasonable amount of loss in this way is unavoidable, from one cause or another, but when a certain limit is exceeded some special cause is suspected, as carelessness in the glass blowing department, want of sufficient annealing, and the like.

The difficulty often passes by during the efforts to control it, without any satisfactory explanation either of the trouble or the cause of its cessation.

The lamp bulbs may crack (a) where the platinum wires are sealed in, or (b) where the "stem" carrying the wires and carbon filament is joined to the bulb proper, or occasionally (c) where the exhausting tube is sealed on at the apex of the bulb.

In addition to the internal strains existing in any such glass work, the lamp bulb, when finished, is subjected externally to the full atmospheric pressure and to sudden heat strains from the instantaneous turning on of current, as occurs in perhaps a majority of lamps in use.

This combination of strains being considered, it is evident that differences in the glass used for the bulb and stem and consequent differences of coefficients of expansion which, in ordinary glass work would not be of importance, will become manifest here.

Glass blowers know that similar grades of glass should be used together, but they are able to work up grades of glass differing in composition more than is permissible in incandescent lamps.

I have had an opportunity to make some analyses of the glass used at a time when the percentage of spontaneous breakage was abnormally large, and when every care in making up the lamps, annealing, etc., was unavailing.

*Analysis of Glass Rod, Tube and Lamp Bulb.*

| | Rod, 108. | Tube, 109 | Lamp Bulb, 112. |
|---|---|---|---|
| $K_2O$ | 1·38 | 4·20 | 2·32 |
| $Na_2O$ | 15·06 | 9·05 | 14·50 |
| CaO | 2·15 | —— | 6·40 |
| MgO | 0·70 | —— | 0·93 |
| MnO | | trace. | trace. |
| $Fe_2O_3$ / $Al_2O_3$ | 1·02 | 1·65 | 1·45 |
| PbO | 16·81 | 19·83 | 1·39 |
| $SiO_2$ | 63·44 | 65·16 | 72·35 |
| $Cr_2O_3$ | trace. | trace. | trace. |
| | 100·56 | 99·89 | 99·34 |

These results explained the trouble from breakage in lamps made up from these grades of glass.

During the investigation, samples of glass by several different makers were analysed; one of them, an English lamp gave the following figures:—

*Analysis of Bulb and Stem of English Incandescent Lamp.*

| | Bulb 115. | Stem 116. |
|---|---|---|
| $K_2O$ | 5·20 | 6·14 |
| $Na_2O$ | 9·20 | 8·10 |
| CaO | 5·41 | 5·05 |
| MgO | —— | trace. |
| $Fe_2O_3$ | —— | 1·10 |
| $Al_2O_3$ | 3·70 | |
| PbO | 2·90 | 10·68 |
| $SiO_2$ | 73·10 | 68·24 |
| | 99·51 | 99·31 |

This bulb was a very brilliant clear glass. While nothing is known as to the percentage of breakage in the manufacture of these lamps, it is evident that no special effort has been made to use the same glass in both parts of the lamp. Another lamp (of American manufacture) was examined and found to be of the same glass throughout, as shown below:—

| | Bulb 113. | Stem 114. |
|---|---|---|
| $K_2O$ | 7·17 | 6·91 |
| $Na_2O$ | 6·43 | 5·89 |
| $Al_2O_3$ | 0·39 | 1·98 |
| PbO | 18·70 | 17·14 |
| $SiO_2$ | 66·22 | 65·80 |
| CaO | 0·45 | 1·25 |
| MnO / MgO / $Fe_2O_3$ | traces. | traces. |
| | 99·36 | 98·97 |

It should be said here that no proof has been obtained as to the possibility that some glasses of different composition may have similar coefficients of expansion, certain constituents compensating each other, but as it is a simple matter to obtain glass of practically the same composition for all parts of a lamp or any other complex glass work problems connected with the coefficiency of expansion need not necessarily be taken into consideration.

## PURIFYING WATER FILTER BEDS.

ONE of the most important, and, at the same time, most difficult and expensive operations in connection with waterworks practice is that of cleansing the sand used for filtering purposes. The sand must be removed from the filter beds, some of which have an area of several acres, and thoroughly cleansed from its accumulation of impurities before it can be replaced for use, and this is a tedious operation involving a large amount of manual labour. There are various ways of carrying out this operation, but they are all open to the objections stated. Numerous schemes have been tried for improving and cheapening the ordinary process, but they have hitherto proved only partially successful. An important advance, however, has been made by Messrs. Hunter, Fraser, and Goodman, who, being practical engineers, have worked out a system in which the difficulties of sand washing are entirely overcome. This system has been put in operation at the Kewbridge Works of the Grand Junction Water Works Company, of which Mr. Fraser is the engineer. The method of washing sand hitherto

adopted at those works has been to remove it from the filter bed and throw it into washing-boxes having perforated bottoms, where it was cleansed by an ascending current of water under pressure. This process was at once wasteful, slow, and costly. The new apparatus consists of a receiver which is placed at the level of the filter bed and into which the sand is tipped by the barrowful. From this receiver the sand, mixed with water, is carried up a tube to the first of a series of hoppers on the bank of the filter bed by means of an injector supplied with water under pressure, the injector opening into the ascensional tube. The hoppers are of cast iron and are placed about 7 ft. apart. Each hopper is 2 ft. 4 in. square, and 2 ft. 2 in. high over all, and is provided with a jet-pipe connected with a main carrying water under pressure and regulated by a valve. These hoppers vary in number, according to requirements, the general number being eight, but they need not all be used at the same time. When in operation the water is turned on and issues through each jet, forcing water up the delivery pipes into the hopper, the valves being so regulated as to give a uniform overflow at each hopper. The dirty sand is delivered into the first hopper of the series, and, gravitating to the bottom, is carried forward in a mixed stream of water and sand into the next hopper. This process is repeated in each hopper until the last in the series is reached, which discharges the clean sand into a truck on the filter bed for relaying or at any other point where it is wished to deliver it. The dirt is thoroughly separated from the sand and passes away from the hopper with the overflow water. If screening is necessary, it is effected by discharging the sand and water from the first hopper upon an inclined screen of the required mesh, and which is fixed over the second hopper. With a moderate consumption of water two men can wash and screen three cubic yards of sand per hour, no matter how dirty the sand is. There are two sets of this apparatus at the Kew works, where they have been in satisfactory use for the last six months. One set is at present in operation cleaning the whole of the sand of a filter bed nearly two acres in area, while another set is at work cleaning the surface sand of another filter bed three-quarters of an acre in extent. This plant has been inspected by numerous engineers and gentlemen interested in waterworks practice, who are of the opinion that the claims of efficiency and economy made for the system were fully established. Mr. Fraser states that under the old system the thorough cleansing of the sand of the larger filter had cost about £2,000., whilst, by the new system, it was more quickly effected for about £1,000.

## ARE ARTIFICIALLY COLOURED FLOWERS POISONOUS?

THE Council of Public Health and hygiene of the department of la Seine, recently commissioned M. M. Plancheon to report upon the practice of dyeing natural flowers and its relations to the safety of the public health. When this industry first arose, green carnations were the only artificially coloured flowers to be found in the market. It is said that some florists, having allowed a small quantity of green colouring matter to fall into a vase of carnations, were astonished on the following day to find the flowers of this colour. Perceiving the novelty of the observation they set to work to take advantage of the discovery they had accidentally made. The profits which they thus obtained (green carnations having been sold, it is reported, at five francs) soon led others to imitate them. The greater number, however, were soon met by a difficulty, arising from the fact that all colouring matters have not the power of rising through the vessels of the plant and colouring its petals; they avoided this difficulty by dyeing the plants by immersion, and thus of staining them in all shades.

Thanks to experiments made by M. Houdas of the Ecole de Pharmacie, who is accustomed to the study of these coloured products, it has been possible to examine these two methods of colouration in detail. M. M. Plancheon's report as it appeared in *Le Moniteur de la Teinture* being as follows:—

### 1. FLOWERS COLOURED BY THE PASSAGE OF THE DYE ALONG THE STEM.

The sample of green colouring matter sent to us was "brilliant green," in the form of oxalate; it did not produce colouration in this way. The following were then experimented with—malachite green (tetramethyldiamidotriphenylcarbinol) in the form of oxalate, picrate and combined with zinc chloride; with "brilliant green" (tetraethyldiamidotriphenylcarbinol) in the form of sulphate and picrate with no better results. We also failed to obtain the effect with the greens prepared by the oxidation of the leuco-derivatives of these bases.

The basic colours having thus been found useless we examined the acid dyes. The first we employed (the sodium salt of diethyldibenzyldiamidotriphenylcarbinoltrisulphonic acid) gave us strongly coloured flowers after a few hours. On further experiment it appeared that the sodium salts of the sulphonic acids of the dyes already examined (see above) possessed the property of colouring flowers in this way, and that the same relations held for other colouring matters.

The following conclusions were also deduced:—

(1) That the basic colouring matters are not capable of passing through the stem and colouring the flowers.

(2) That acid colouring matters can, as a rule, be used in this way.

The rates at which the various dyes pass into the flowers vary considerably. Some, such as the acid greens described above, eosin, and the sulphonic acid of magenta mount with great rapidity. Others, chiefly the blues and browns, pass very slowly into the flowers. As an example we may give the three sulphonic acids of triphenylrosaniline:

(1) Triphenylrosanilinemonosulphonate of sodium.

(2) The sodium salt of the disulphonic acid.

(3) The sodium salt of the trisulphonic acid.

The first of these rises extremely slowly, more than one day elapsing before any perceptible colouration is produced. The second gives a colouration much more rapidly, and the third after a still shorter interval, although not so quickly as some other substances.

The rapidity of the colouration also depends on the length of the stem, and the nature of the flower. A colour will rise rapidly in some flowers, slowly in others, and this order may be reversed for a different colour.

It is sometimes said that the different colouring matters do not pass upwards by the same paths. Thus, for example, carnations are not coloured by green in the same way as by eosin, and if the stems of some carnations be plunged into a solution containing both a green and eosin, the flowers are dyed in patches of pink and green, the colours being as pure as when applied singly.

In short flowers can be coloured all shades by the use of acid dyes.

Those which give the best results are:

*Green.*—Sulpho-green, the sodium salt of diethyldibenzyldiamidotriphenylcarbinoltrisulphonic acid.

*Red.*—Eosin; Ponceaux prepared from xylidine and the naphtholsulphonic acids; sulpho-magenta.

*Blue.*—Trisulphonic acid of triphenylrosaniline.

*Yellow.*—Sodium picrate.

Many others will doubtless be found which give equally good results.

### 2. FLOWERS DYED BY IMMERSION.

In order to avoid the difficulty of finding suitable colouring matters for use in the process just described, the flowers were coloured by immersion in a coloured solution. When this is done in an aqueous solution the waxy secretion which is present at the surface of the petals prevents them from becoming moistened, and scarcely any result, or only a very inferior one, is produced. If, however, an alcoholic solution is employed, the colour is obtained on the flower, after evaporation of the alcohol. The specimens produced in this way are very inferior to those prepared by diffusion; they were, however, very popular for some time. Flowers were met with of all kinds and of the most varied hues. Under these conditions all the parts plunged into the solution (flower and stem), bore traces of the colouring matter, and if this colour was soluble in water, a single washing was sufficient to remove it. This process is therefore much less satisfactory than the alternative one, and has already been almost entirely discontinued.

### 3. ARE SUCH FLOWERS DANGEROUS?

This most important question remains to be answered. We must bear in mind that many of the substances employed are perfectly harmless. Only such are to be feared as contain a certain quantity of zinc, such as compounds containing chloride of zinc, or again derivatives of magenta which might contain a certain amount of arsenic or again picric acid, which is rarely if ever employed.

Even if we allow that these substances are poisonous, we must remember that none of them is so in small doses, and that the colouring matter itself being only present in very small quantity, a mere trace of the impurity can accompany it.

When the diffusion process has been employed the precaution may be taken of cutting off the lower portion of the stem which is saturated with the solution, and there then remains only as much of the dye as has been raised by the vessels, perhaps two or three milligrammes. No danger would therefore be incurred by putting the flower in the mouth or even by eating it.

When the flowers have been dipped, there is no trace of the colouring matter in the stem which may therefore be placed in the mouth with impunity. There is only the slight layer which is present in places on the petals and the flower might be sucked free from this without any danger whatever.

M. M. Plancheon believes, therefore, that this industry of dyeing flowers, which is at present fashionable, cannot have any injurious influence on the public health.

THE COMPOSITION OF GUM SUBSTITUTE.—Arabol gum is the name under which a new gum substitute has been introduced on the Continent. Mr. F. M. Horn has found it, on analysis, to consist of maltose, 24·23; dextrin, 54·48; wheaten starch, 4·18; water, 15·12; and ash, 0·81 per cent.

## RECENT CUSTOMS DECISIONS.

OIL OF MYRBANE (NITRO-BENZOLE).

IN the matter of protests, of Fritzche Bros., et al, against the decision of the collector of customs at New York as to the rate and amount of duties chargeable on certain oil of myrbane (nitro-benzole), imported per the vessels and on the dates named in annexed schedule, the following is the opinion by General Appraiser Lunt.

The merchandise which is the subject of these protests has been and is known to commerce and in the arts by the name of oil of myrbane, nitro-benzole, essence of myrbane, myrbane, and artificial oil of bitter almonds.

It is one of the numerous chemical compounds the characteristic or dominating element of which is derived from coal tar as a commercial source. To produce this substance, benzole, a constituent and distillate of coal tar, is treated in a closed vessel or still, with two parts of fuming nitric acid amd one part of concentrated sulphuric acid. These acids are gradually added to the benzole, with agitation, the nitric acid being applied slowly until red fumes appear.

The end of the chemical reaction is indicated by the liquid becoming colourless, or nearly so, and separating into two distinct strata on the addition of water.

The nitro-benzole so precipitated in one strata is drawn off and purified or refined by distillation.

The sample of these importations now before us is of a pale yellow colour, has a burning sweet taste, and a smell and flavour resembling a mixture of oil of bitter almonds and cinnamon. The testimony of very learned chemists, and of others, shows that this substance is poisonous and unfit for flavouring purposes, although the United States Dispensatory states that it is so used.

The several grades met with in commerce are known as "light," "heavy" and "very heavy," boiling respectively at 400° to 410° F., 410° to 428° F., and 430° to 455° F. "Myrbane" is a fancy name originally applied to nitro-benzole when it was first discovered and introduced to the public as "essence of myrbane." Large quantities are consumed by manufacturers of aniline colours and explosives, while the quality under consideration is very extensively used by perfumers and by soap makers for perfuming toilet soap. This substance is generally bought and sold by the name of oil of myrbane or nitro-benzole, although the other names mentioned are applied to it, and it may be said that it is commercially designated at the present time indifferently as nitro-benzole, as oil of myrbane, and as artificial oil of bitter almonds.

As may be seen from our description of the method of its production, oil of myrbane, or nitro-benzole, is a chemical compound and an oil evolved or precipitated from benzole by chemical combination and reaction, and is not produced or extracted by distillation, and therefore is not in fact an oil distilled, expressed, or rendered.

In accordance with views which we have heretofore expressed in other cases, this substance must also be considered as a coal-tar preparation, because its dominating element is drawn from coal tar. It also has many of the characteristics of an essential oil, and when pure it is in its chemical constitution almost identical with oil of bitter almonds, which is a natural essential oil.

In the foregoing statements we have shown that oil of myrbane or nitro-benzole is a chemical compound, a coal-tar preparation, and an oil having the characteristics and substantially the constitution of an essential oil, although it is not in fact an essential oil extracted from organic sources. It is adapted for use and used for purposes for which essential oils are used, as well as for other purposes. We have had before us a number of dealers and importers of essential oils, and their printed price lists have been produced. These lists, printed long before, as well as since, the passage of the present Tariff Act, contain the names and prices of about all the essential oils ever known to the trade. Among many familiar names we find artificial oil of mustard, artificial oil of bitter almonds or oil of myrbane, and oil of wintergreen, synthetic, all substantially produced from coal tar and artificial counterparts of the natural oils obtained immediately from vegetable sources.

These trade lists, and the statements of dealers, show that oil of myrbane is classed and bought and sold by dealers in and importers of oils as an essential oil.

Upon consideration of the oral and documentary evidence before the Board, and referring to the works of technical writers, we find the following facts:

1. That the protestants imported into the port of New York at sundry times since October 6, 1890, as shown in the schedule annexed, certain merchandise which was assessed for duty at 25 per cent. *ad valorem* as a preparation known as an essential oil, under the provisions of paragraph 76, N. T.

2. That said merchandise was, on and before the first day of October, 1890, designated in trade and commerce by the names of oil of myrbane, nitro-benzole, essence of myrbane, and artificial oil of bitter almonds.

3. That the said so-called oil of myrbane is a coal-tar preparation, not a colour nor dye; that it is a chemical compound, and a constructed oil, similar in its constitution and adapted to some of the uses to which essential oils are applied; that it is an artificial counterpart of the natural and genuine essential oil of bitter almonds, which is obtained by distillation, but it is not a distilled, expressed, or rendered oil.

4. That natural essential oils are products mostly obtained directly by distillation, while artificial essential oils are chemical compounds and preparations.

5. That "oil of myrbane," at the time mentioned in our second finding, was listed, bought and sold and offered for sale as an essential oil by a large number of the importers of and dealers in essential oils in the United States.

The protestants severally claim that this merchandise is subject to duty at 20 per cent., as a coal-tar preparation, not a colour or dye, under the provisions of paragraph 19 of the act of October 1, 1890. Paragraph 19 of the Tariff Act imposes a duty of 20 per cent. *ad valorem* upon all preparations of coal tar, not colours or dyes, not specially provided for in this Act. We understand this to impose a duty upon preparations made of or from coal-tar, when the same are not specially provided for. Coal-tar preparations embrace chemical compounds of every variety, including alkalis, salts, acids, and oils. Except for reasons hereinafter stated, we should have no hesitation in holding that "oil of myrbane" was dutiable under paragraph 19 as a coal-tar preparation, if it did not appear, as shown in our findings, that it was listed, bought, sold, and offered for sale as an essential oil by dealers in that class of merchandise. Also considering that this substance is in fact an oil, having the characteristics of an essential oil; that it is advertised and offered for sale and extensively bought and sold as an essential oil, although it may not be universally dealt in as such, it seems to us that within the meaning of paragraph 76 it is a preparation known as an essential oil. Natural essential oils are products, when artificial essential oils are preparations and chemical compounds, and so paragraph 76 provides for products and preparations * * * known as essential oils, thereby covering both natural and artificial oils. It is true that this paragraph contains words of limitation, *i. e.*, "not specially provided for in this Act," but paragraph 19 contains the same words. The words "preparations * * * known as * * * essential oils," contained in paragraph 76, are, however, more specific and minute than the general provision for preparations of coal tar provided for in paragraph 19.

We hold as a matter of law, that the oil of myrbane or nitro-benzole imported by these protestants was lawfully classified for duty under paragraph 76, N. T.

The protests are overruled.

## THE ASSAY OF OPIUM.

IN a contribution to the *Oil, Paint and Drug Reporter* on this subject, D. B. Dott gives preference to the Teschemacher and Smith process for assaying opium. In outline, this method consists in exhausting the opium with water, concentrating to a small bulk, mixing with spirit, ether and ammonia, collecting the precipitated crude morphia, washing the precipitated crude morphia, washing the same with "morphiated spirit," morphiated water, and with benzene, then weighing and titrating with standard acid.

Probably, says the author, the most original part of the process consists in washing the impure morphine with a saturated solution of morphine in spirit, called "morphiated spirit," the object being to purify the precipitate without that loss which must result from the use of ordinary spirit. This gives a very pure product, but there is just a suspicion that it is sometimes a source of error. The theory is, that as the spirit is saturated with morphine it is impossible for the spirit to take up a further quantity of the alkaloid. But is this really the case? There is a measure of safety in the fact that morphine is only sparingly soluble in spirit. No one of course would propose to purify such an alkaloid as atropine, for instance, by washing with a saturated solution of the alkaloid in spirit, because such circumstances as variations of temperature, and the washing solution not being absolutely saturated, would cause serious error in an assay process. But, although morphine is sparingly soluble in spirit, is it always equally soluble? Obviously, this is an essential condition of accuracy, where a saturated solution is used in the manner described. Now we know that morphine in an amorphous or partially amorphous state, as it is frequently when precipitated from an impure solution, is much more soluble than when in the pure crystalline state. There is, besides, a general belief, which no doubt is quite correct, that the presence of other alkaloids and soluble resins and colouring matters increases the solubility of the morphine, or, indeed, any alkaloid under similar circumstances. Messrs. Teschemacher and Smith state that in their process the morphine separates in arenaceous crystals. My experience is that it frequently separates at least partly in resinoidal lumps which gradually become

more crystalline, but not completely so, whence we infer that the precipitate must sometimes be, to some extent, dissolved by the morphiated spirit. There is another matter which occurred to me as a possible source of error in Teschemacher's process. When the morphine finally obtained in Teschemacher's process is incinerated, an appreciable amount of ash is left. This fact would be of little moment if the ash results entirely from the combustion of neutral salts, which would not affect titration by standard acid. It is, however, well known that meconic acid forms basic salts with lime and magnesia, and any calcium solution containing excess of ammonia will become turbid from the formation or carbonate by absorption of carbonic acid from the air. The former of these is a very likely source of error. The latter should scarcely come into play if the precipitation is performed in a small, well-corked flask. In order to investigate the point in question, 3·316 grams. of the morphine obtained as above described were treated with a large volume of boiling spirit, the solution filtered in a funnel surrounded by boiling water, and the residue several times washed with hot spirit. When dried the residue weighed 0·132 grams., which is equivalent to 3·88 per cent. in the precipitated morphine. The residue was then suspended in hot water, and $\frac{N}{5}$ sulphuric acid added, until the reaction was acid to litmus; 0·7 c.c. was required, indicating ·0039 grams. calcium oxide=0·09 per cent. This percentage of CaO is equivalent to 0·97 per cent. of morphine hydrate—*i.e.*, the ordinary precipitated morphine, whence it is manifest that no serious error can arise from the presence of basic salts, the error being on the right side, as there can be no doubt that the loss of morphine in mother liquors must more than balance any such error. All the same, it would be too much to assume that there are no samples of opium in which the error arising from basic salts will be considerable. I have on previous occasions given due praise to the assay process of Teschemacher and Smith, and I still think it is the best published process. One of its best features is the simple provision that the morphine is precipitated from as small a volume of liquid as possible. All methods in which a relatively large volume of liquid is present are more or less inaccurate. At the same time experience shows that the results obtained by this process occasionally show discrepancies and tend generally to indicate a little under the truth. I attribute this principally to the washing with morphiated spirit, though no doubt there are other causes at work. The following method of procedure has yielded me more concordant and rather higher results, and therefore may be usefully brought under your notice.

Ten grams. of the opium in powder is exhausted with spirit of ·920 specific gravity. One or two drops solution of ammonium oxalate are added, and then ammonia, until the spirit is only slightly acid. It is then evaporated to one-third its original volume, allowed to cool and filtered. The filtrate is then concentrated to about 5 c.c., transferred to a small flask, 4 c.c. water and 3 c.c. methylated spirit being used to wash the capsule. 2·2 c.c. solution of ammonia (·960 specific gravity) are then introduced, 25 c.c. of ether being introduced at same time. The flask is now closed with a well-fitting cork, and shaken so as to mix the contents. After 18 hours the ether is decanted as completely as possible, the precipitate collected on counterpoised filters, and washed with morphiated water. It is then dried, washed with benzene, dried and weighed, and finally titrated with $\frac{N}{10}$ sulphuric acid, 1 c.c. of the acid=·0303 grams. morphine hydrate. Although it is not essential it is preferable to weigh the morphine before titrating, as an idea is thereby given of the amount of acid which will be required. This process is only to be recommended when the morphine is to be titrated. If reliance is to be placed on the gravimetre result, preference must be given to the method of Teschemacher and Smith.

## COLOUR TESTING.

By C. W. Wilson.

*(Concluded from page 291.)*

### BLUES.

Pure Prussian blue is so powerful that it may be adulterated to a very considerable extent, and yet not be noticed by the painter in his use of it.

Perfectly pure blue may be and should be ground so thoroughly as to be almost like the oil itself. This blue is pure. The jar contains some of the blue mixed with several hundred times its weight of oil. It looks like clear blue oil, and the colouring matter will not settle out for a long time; this is to show how finely the pure blue may be ground.

This panel represents a tint of one part blue, one hundred parts of white lead. From this you will readily believe that one pound of pure blue will turn off a whole ton of white lead to a decided blue tint.

Blue takes up a large quantity of oil. The paste in this can consist of about 62% pigment and 38% oil, and is about as stiff as can be conveniently used.

A pure blue will show in its adulterated state a rich bronze by reflected light; its tint should be clear and sky blue as distinguished from a purplish or leaden blue. Pure blues can be much more cheaply made that give this dull tint than those that give the clear tone, and this is to be observed in practical work; if you have a blue that gives the purplish tint, nothing in the way of a pigment that you can add will clear it; whereas if the purple tint be wanted and you have the clear blue, you have only to add almost any clear red in small proportion. Some blues again give a decided greenish toned tint; these are to be avoided also. This quality of tint is an important test for the quality of the blue. Probably it is well to state here that when you are making tint tests you must be careful to use always the same white. It may not be known to all that there is a very great difference in the strength of whites. I will illustrate: This panel shows a tint of one hundred parts strictly pure white lead and one of blue. This panel shows the same, but using a different lead. You will readily estimate a difference of 20 to 25% in strength. A coarse lead will take less oil and lay on the surface in a thicker film and, therefore, show apparently more body than one finer and much more opaque which is a big oil absorber and which will work out in a thin film; if too thin a film it will not cover as well as desired.

But to return to blue, a pure blue should give a tint 1 to 100 of a good white lead, equal in strength to a sky blue; the tint itself should be clear; the paste should be thick and the grinding so fine as to rub out without a streak.

Chinese blue is practically the same as the pure Prussian blue shown you. In the dry state it has more bronze and in oil is slightly stronger. Its tint, if the blue is well made, should be as described for a good Prussian blue.

There is a class of blues which contain varying quantities of alumina; this destroys the bronze, but the strength of the blue is reduced in greater proportion even than the alumina present.

It is very seldom that the pure blue is used as a body colour. Should it be necessary to use it as a solid colour and the richer bronze be objectionable, it can be subdued by the addition of a minute quantity of pure zinc white without materially affecting the depth of the colour.

Ultramarine blue is a very complex substance. It is somewhat like ochre inasmuch as it may vary very much in shade, body and tinting strength, and yet be pure. The quality, however, is somewhat in proportion to the fineness. The better blues in the dry state are all finer, softer and more intense than the poorer ones. Without analysis the presence of any intentional adulterant by the colour grinder cannot be detected. In fact, there are at least two things that can be used as adulterants which a chemist would not attempt to say were put there as cheapeners, as they exist naturally in the blue itself. The panels exhibited show you what we consider a good blue and the strength and quality of the tint. While I believe it is claimed that the purplish blues are somewhat more permanent than the clearer ones, they are very undesirable and for practically the same reasons as given for some kinds of Prussian blue. You can never get the clear tint from the purple blue, while it is a very simple matter to get the purplish tint from the clear blue.

Imitation of cobalt blue is simply a very clear ultramarine mixed with some French zinc white.

### BROWNS.

Umber is one of the stand-byes of the painter. It owes its colouring to iron oxide and manganese oxide, and to the latter its drying property. Its other constituents are the same as ochre. The main reason for adulterating umber with barytes is to make its grinding in the mill an easier task, and to reduce the proportion of oil in the paste, the oil being the most costly element.

The same remark applies also to ordinary siennas; though high grades of sienna are very costly; and if they be used by the grinder and adulterated, the adulteration would be to cheapen the sienna as well as to lessen the proportion of oil.

Umbers and siennas when ground pure and to that degree of fineness which is necessary to develop them properly are among the most costly goods to prepare that the colour grinder handles. They are generally sold as leaders, and the current net prices are much lower than they legitimately should be. It costs at least five times as much in labour and power to grind this class as it does, for instance, to grind chrome yellow, and ten times as much as some other colours.

Nearly every colour house of any importance now grinds its umber pure; so there is little difficulty in getting pure umbers, but every house is not by any means so careful in selection as it should be, and the difference in the quality of umbers in the crude state, both raw and burned, is somewhat remarkable, the difference in staining power is sometimes 50%, and the umbers of a rich brown tone are much more difficult to obtain than those of the red tone. A good, well selected burnt umber is of a rich brown tone, gives a tint with a white lead free of red cast and of strength as shown here; these are made 1 to 50 parts of white lead; it must be ground like butter almost.

Whiting is a frequent adulterant; if used with a naturally strong

, it may not reduce the strength below that or a pure but poorly d article.

ber requires a certain quantity of oil to make it into a workable yet as much barytes may be added without additional oil. The uantity of oil that can be used is about 75 lbs. to 100 lbs. dry , or about 57% actual colour in the paste. 75 lbs. of barytes may ed, not reducing the actual colour below 40%. So you will see e colouring will not be reduced in a case of this kind in pro- 1 to the adulteration.

iennas it is absolutely essential to consider the transparency, prepared for grainers' uses; yet the transparent siennas are not, le, nearly so strong as the opaque kinds. The grinder considers pth of the colour and the transparency. The house painter will ienna more for tinting or staining purposes and therefore, con- the strength; and if he use it as a solid colour, the opacity is of mportance. Hence, two kinds should be prepared.

iels were exhibited showing one coat of grainer's and house rs' Sienna on bare wood, also the differences in the tints made hite lead; tints were one part of oil colour to 25 parts white lead.) iness of colour and quality of tint are to be considered in these iations and, in general, the same as umber.

the colour grinder to maintain umber and sienna steadily uni- n quality, he must have a large stock, and average it, because he primary markets it is almost impossible to obtain two invioces

dyke brown is of two kinds; one something like umber in its sition and the other of a peaty nature. It is a deeper, richer than umber. This colour particularly of the peaty character, is the most difficult to handle that the paint grinder has to deal To grind it perfectly fine and smooth, as it should be ground, is ostly; and, as a rule, it is not so well prepared as it should be; is accounts, I suppose, for its limited use. Excepting for the ir character of its tint, it is not very desirable as a tinting colour, ing as strong as umber.

## THE QUALITY OF LEEDS GAS.

E following is taken from the report of Mr. T. Fairley, the gas examiner, who states that during the period from April to June 892. "The proportion of total sulphur contained in the Leeds s averaged 17·48 grains per 100 cubic feet. The following are sults of tests made at the works in grains per 100 cubic feet:—

| Place. | Date when Tests were made. | | Total Sulphur. | Ammonia. | Carbonic Acid. | |
|---|---|---|---|---|---|---|
| | May, 1892. | June, 1892. | | | Weight. | Volume. |
| w Lane.... | 19. 26. | 2. 9. | 15·45 | 1·17 | 48·90 | 0·06 |
| 'ortley .... | 18. 27. 31. | 8. | 19·51 | 0·23 | 48·90 | 0·06 |
| treet ..... | 19. 24. | 3. 9. | 20·56 | 1 62 | 48·90 | 0·06 |
| e at Works | .. | .. | 17·48 | 0·76 | 48·90 | 0·06 |
| e at East le ..... | .. | .. | 15·82 | 1·34 | 48·90 | 0·06 |

g the month the average illuminating power of the Leeds gas, at 16, East Parade, has been in standard candles (burning 120 of sperm per hour):—Standard argand, 24-hole, 19 0; standard ng, 19·7; Sugg's illuminating power meter, 18 8."

# Legal Intelligence.

## SUPREME COURT OF JUDICATURE.

### COURT OF APPEAL.

*Lord Esher, Lord Justice Bowen, and Lord Justice A. L. Smith.*

THE BELLITE EXPLOSIVE COMPANY V. CUNLIFFE.

s was an action which, with a previous Chancery suit (*C. T. J.* 10), had arisen out of the subscription by the defendant, as he l, on false representations by the company, of shares in the : Explosive Company (Limited). The company was incorporated rch, 1889, with a capital of £195,000., divided into 29,000 pre- shares of £5., and 10,000 ordinary shares of £5., with the object quiring certain alleged patent rights in an explosive substance Bellite; and the company issued a prospectus containing these ients—alleged to be misrepresentations—(1) that Bellite cannot de to explode by friction, nor by shock or pressure, nor can it be to explode by electricity, or by lightning, or by fire—whereas it leged by the subscriber, Cunliffe, that it could be made to explode se means; (2) that it presents no danger whatever in manufac- ind can be transported by land or sea with perfect safety—where- as, he alleged, it does present danger in manufacture and cannot be transported with perfect safety; (3) that Bellite can only be made to explode by the aid of a detonating cap, and it is therefore absolutely safe—whereas the contrary was alleged to be the fact; (4) that Bellite does not give off any noxious gases on explosion—whereas, as he alleged, it does. On the faith of these statements, as he alleged, he subscribed for 200 shares, and they were allotted to him, and he paid £100. Finding, as he conceived, that there had been misrepresentations, he brought a suit in Chancery to get rid of the contract, while the company afterwards made a claim to recover the calls. The suit was compromised on the terms of the allottee paying £900. and the company giving up the interests on the calls. This was not carried out, and there was now an action by the company to recover the £900., either on the compromise or as due for the calls. The defendant set up a defence on the ground of the alleged misrepresentations, the shares being, as he said, worthless. At the trial, before Mr. Justice Lawrance and a jury, they found that the compromise was entered into without fraud; and, that being so, a verdict was entered for the company for the £900. The defendant Cunliffe now applied to set this aside, on the ground that the compromise had been rescinded.

Mr. E. Tindal Atkinson, Q.C., and Mr. Macaskie were for the defendant Cunlifle; Mr. Moulton, Q.C., and Mr. Rolland were for the company.

Their LORDSHIPS were of opinion that there was no evidence of any rescission of the compromise, and that, therefore, the company were entitled to recover. The verdict therefore must stand and judgment be given for the company.

*Before Lord Justice Lindley, Lord Justice Lopes, and Lord Justice A. L. Smith.*

KEARLEY AND ANOTHER V. GOODHEW AND SONS (LIMITED).

This was an application by the plaintiffs for a new trial. The action was brought to recover damages for an alleged breach of warranty of plum jam, and for fraud in delivering to the plaintiffs an adulterated article within the knowledge of the defendants. The plaintiffs carried on business as the International Tea Store Company, and the defendants were jam manufacturers at Sittingbourne, in Kent. According to the plaintiffs' case they made a contract with the defendants, on September 12, 1890, to supply them with plum jam—200 gross, or 28,000 pots, of no specified growth. The defendants commenced delivery directly afterwards, and the plaintifls, through their numerous branches (200) over the south of England, disposed of some 27,870 pots of the jam supplied. The jam so supplied bore the name of the defendants' firm. In the following August, when the stock was all disposed of except 130 pots, the plaintiffs, in consequence of a summons before magistrates for adulterating other jam, which was dismissed, began to examine what had been supplied by the defendants' firm. They, therefore, sent 30 samples to three different analysts, one private and two public; and they declared that the jam supplied was adulterated with apple juice or pulp. The plaintiffs said they then sent a circular to all their branches recalling all the defendants' jam from their stores, but no copy of this circular was forthcoming. The defendants, on being made aware of this apparant deviation, said it happened through a mistake of their labeller, and they offered to take back what had been supplied. The defendants explained that this "plum and apple jam" had been misplaced among the pure plum jam in their barge coming up the river. The plaintiffs called their analysts, who spoke to the presence of apple juice up to 30 per cent. in some samples, decreasing to a very small quantity in others; and they called members of the firms of Woods and of Crosse and Blackwell to say that no extraneous substance whatever, beyond fruit and sugar, except, perhaps, water when the fruit was dry, should be added to plum jam. The case for the defendants was that they had, almost of necessity, added some apple juice to produce a proper consistency in the jam; that they had done this openly and not from any desire to sell an improper cheap article; and they counter-claimed against the plaintiffs for other jams supplied to them to the amount of £827. 7s. 10d. The action was tried on the 30th and 31st of May, before Mr. Baron Pollock and a special jury. The learned Baron left these questions to the jury:—(1) Do you consider that the jam delivered by the defendants was in accordance with the contract—*i.e.*, within the words "plum jam"? (2) If you consider it was not in accordance with the contract, did the defendants deliver the jam in fraud of the plaintiffs? The jury found that the defendants supplied jam in accordance with the contract, and that they did not defraud the plaintiffs, and they found further that the plaintiffs suffered damage by reason of the mislabelling of the jam to the extent of £10. Upon these findings his Lordship, in consideration of the fact that no claim was made by the plaintiffs in respect of the mislabelling, entered a verdict for the defendants on the plaintiffs' claim, and for the defendants on the counter-claim for £827. 7s. 10d., with costs, and refused a stay of

execution. The plaintiffs now moved for a new trial on the ground that the verdict was against the weight of evidence and inconsistent.

Mr. Alfred Cook, Q.C., and Mr. Horace Avory were for the plaintiffs; Mr. Lionel Pyke, Q.C., and Mr. W. O. Hodges were for the defendants.

The Court refused the application.

Lord Justice Lindley said that the action, in its simplest form, was an action for breach of contract in not supplying plum jam in accordance with the contract of the 12th September, 1890. The plaintiff's case was this—that the defendants were fruit growers and preservers; that there were two kinds of plum jam, one called plum-and-apple jam, made of plums and apples, and the other called plum jam, being made of plums only, without any admixture of apples; and that the jam supplied to them as plum jam had some apple in it They alleged further that they were subjected to much inconvenience and annoyance by such breach of contract; that they had, in fact, been prosecuted, under the Sale of Food and Drugs Act, in respect of jams supplied to them under other contracts; and that this action was necessary to vindicate their reputation. It was admitted that the defendants had by mistake supplied certain jam to the plaintiffs as plum jam which was plum-and-apple jam, but that had been explained, and that was no part of the plaintiffs' case The plaintiffs charged breach of contract and fraud, and they fought the case out on the line of fraud. The jury found that the jam was according to contract and that there was no fraud. In his Lordship's opinion there was ample evidence to justify the jury in finding that the jam which was supplied to the plaintiffs was the jam which was ordered. The plaintiffs relied on the analyses of public analysts, from which it appeared that they would have certified that the presence of the apple juice would support a prosecution for adulteration, but that was not the question The question was whether this jam was what was known as plum jam in a commercial sense. There was evidence that in certain seasons of the year, when the fruit was dry, it was necessary to add some other ingredient to the plums in order to give the jam a proper consistency. Upon an examination of the evidence his Lordship came to the conclusion that there was no ground for disturbing the verdict and judgment and that the application failed.

Lord Justice Lopes and Lord Justice A L. Smith concurred.


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Paternoster Row, E.C.,

On usual trade terms.


## Correspondence.

**** We do not hold ourselves responsible for the opinions expressed by our correspondents.*

### *ANSWERS TO CORRESPONDENTS.*

G. T. and Co.—Thanks

J. N.—We have communicated with our contributor.

E. L. P.—There is no objection, provided the sulphate of sodium which would be formed is not deleterious to the purpose for which the acid is intended.

E. V. E —We hope you will reconsider your decision.

J. H.—We will try to procure the publication of the article.

A. C.—We were under the impression that it had been sent.

H.—The number for that date is out of print. In No. 268 you will find a complete list of the issues which are out of print.

A. S (New York) —We have noted the change.

D.—The journal is specially suitable to your requirements.

P. M. J.—We are pleased to comply with your request.

## Trade Notes.

Failure of Olive Oil Crop.—The yield of olive oil in 1891, in the British consular district of Mogador, Morocco, was affected by detrimental influences, and the value exported only amounted to £43,890., against £138,720. the previous year. The trees in some groves were barked and otherwise injured by the locusts, and instances were mentioned of farmers being obliged to gather their olives before they were ripe, to save them from the voracious insects.

The Illness of M. Pasteur.—The eminent French sci M. Pasteur, who has been suffering from an attack of chole reported to be out of danger.

A Substitute for Indiarubber.—A new substitute for rubber consists of gum dissolved in benzine, to which 2 per ce bitumen is added.

Personal.—The new list of Doctors of Science of the Univer London includes the name of Mr. Bernard Dyer, on whom the has been conferred for contributions to the chemistry of agricultu

The United Alkali Company and the Election. United Alkali Company have set a good example by posting the ing, printed in bold type, in the pay lodges of all their wo "General Election, 1892. The directors wish that every should be given to the men in the employ of the company to their votes, and in order to prevent any cause of complaint of influence being used in favour of any candidate, meetings canvassing in any of the works are strictly prohibited."

Vitriol and "British Wine."—Recently a man in the of the British Electric Light Co., while doing some fitting, drank liquid from a bottle labelled "British Wine." As a matter of f bottle contained sulphuric acid. The man subsequently died was seen drinking from a blue jug, and it is supposed that he mu mixed some of the vitriol with water and drunk the mixture. T censured the firm for leaving vitriol about in a bottle not la poison. In defence it was stated that drinking was forbidden premises.

Wood Pulp.—The total exports of chemical wood pulp Sweden during 1891 amounted to 30,720,750 kilogrammes. largest quantity by far—viz., 20,902,156 kilogrammes—was ex to England, after which come Denmark and Belgium. Of mech wood pulp the total exports amounted to 42,638,371 kilogra 9,954,692 kilogrammes of which came to England, and a quantity went to France; Denmark figured for 5,348,769 kilogra and Belgium for 8,091,303 kilogrammes. Gothenburg is the pr shipping port, more than 55,000,000 kilogrammes having been ex from that place.

New German Cement Works.—The Hallischen Pe Cement Factory, which was founded in Halle during the past ye now commenced active work. It will doubtless be of interest to of our readers to obtain some further information as to this under To begin with the great advantage of this factory is the eas which the raw material can be obtained Every improvement duced in the manufacture of Portland cement has been here ad The steam power is supplied by two engines of 500 h. p. Ow the excellency of the raw material it is anticipated that the turned out will be of high quality.

Profits of the Manchester Gasworks.—The Gas Com of the Manchester Corporation report that for the year ending 31, 1892, the increase in the quantity of gas consumed has bee per cent. The gross profit for the year, after paying for wear a and renewal of works, was £114,611. 17s. 6d.; and after ded the fixed charges, namely, £26,379. 11s. 2d. for interest, £13 9 sinking fund, and writing off £9,085. 6s. 11d. balance of publi capital account, the sum of £55,596. has been paid over to t fund, and £9,596. 19s. 5d. placed to renewals account.

Discovery of Lead in Upper Teesdale.—A valuable dis of lead has been made on the slopes of Meldon Hill, in the reaches of the Tees. The vein is said to be a continuation celebrated and productive Green Hurth yield, which mine ha been very profitable. The level driven in, gains more cover, or as it penetrates the hill in a southerly direction. Estimates for bridge across the Tees are being obtained, and it is intended t out this and other veins on the level system thus avoiding th attendant upon mines worked by shafts, and also the necessary steam engines in a district so remote from cheap fuel.

River Pollution: Legal Proceedings.—On Monday the monthly meeting of the Ribble Joint Committee, the Right J. T. Hibbert, M.P., presiding, the Clerk presented a detailed upon the disposal of sewage in the various districts. On his mendation it was resolved that, without further notice, sum be issued against the borough of Clitheroe, the Local Bo Clayton-le-Moors, Croston, Great Harwood, Padiham, and H and the Rural Sanitary Authorities of Clitheroe and Preston Chairman said he would make an appeal to the Authorities me to deal with this matter in a fair spirit. It was not at all a fair t Authorities who were dealing with their sewage that other Auth should be allowed to continue to pollute the streams, and so sa pockets of their ratepayers. That Committee was determined to to the powers that the Act of Parliament gave them to insist up Sanitary Authorities doing their duty, and the sooner, therefor they dealt with the matter the more satisfactory it would be for one concerned.

J. COOPER and Co.—The above firm of manufacturing chemists and drysalters of Antley Chemical Works, Church, have recently made a deed of arrangement. The following are amongst the chief creditors:

| | | | | |
|---|---|---|---|---|
| Bowers, Ed., & Co. | London | £59 | 17 | 10 |
| Bridge, Baron, & Son | Accrington | 12 | 18 | 11 |
| Metcalf, John | ,, | 10 | 10 | 6 |
| Riley, J., & Sons | ,, | 39 | 2 | 6 |
| Singer, George | Aix-la-Chapelle | 48 | 12 | 0 |
| Adley, Tolkein, & Co. | Blackburn | 78 | 19 | 0 |
| Haworth, J., & Co. | Church | 20 | 0 | 6 |
| Varcoe, William | Hanley | 32 | 19 | 6 |
| Watson, Walker, & Quickfall | Leeds | 21 | 8 | 9 |
| Aitken & Co. | Liverpool | 13 | 12 | 1 |
| Casson & Co. | ,, | 12 | 8 | 9 |
| Clay, Dodd, & Co. | ,, | 14 | 6 | 10 |
| Turnbull, J. L., & Co. | ,, | 41 | 12 | 9 |
| Arden, T. C. | Manchester | 12 | 8 | 4 |
| Bryce & Rumpff | ,, | 92 | 10 | 7 |
| Brooke, C. J. | ,, | 31 | 0 | 2 |
| Blyth, W., & Co. | ,, | 14 | 19 | 8 |
| Findlater & Kerr | ,, | 10 | 10 | 0 |
| Levenstein, I., & Co., Limited | ,, | 13 | 0 | 0 |
| Leonhardt, A. | ,, | 88 | 0 | 7 |
| Millward & Co. | ,, | 38 | 3 | 9 |
| Saul, C. H. | ,, | 33 | 13 | 10 |
| Thompson, Bedford, & Co., Limited | ,, | 116 | 14 | 6 |
| Wilkins, Charles | ,, | 19 | 9 | 10 |
| Dalton, J. & E. | New Mills | 23 | 8 | 1 |
| Wilson, R., & Co. | Paisley | 15 | 12 | 5 |
| Makinson, E. & W. G. | Preston | 19 | 0 | 0 |
| Grove Chemical Co. | Wigan | 24 | 18 | 0 |
| Lancashire and Yorkshire Railway Co. | | 10 | 6 | 4 |
| *BANKERS' CLAIMS | | 524 | 18 | 4 |
| UNSECURED LIABILITIES | | 1,667 | 2 | 11 |
| ESTIMATED NET ASSETS | | 888 | 7 | 7 |

# Market Reports.

## TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are steady, and there has been a good business doing in caustic soda and bleaching powder, large sales of the latter product have been made for shipment to the Continent and Europe.

Stocks on the Tyne are very light.

Bleaching powder, softs, £7. 10s. and £7. 12s. 6d. per ton, and hards, £7. 15s. and £7. 17s. 6d. per ton; caustic soda, 77/76%, £11. 15s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £5. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52%, £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton, in 10 ton lots; silicate of soda, 75° Tw. £3. per ton, 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per ton; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 7d. per lb. less 6%; pearl hardening, £3. 10s. per ton nett; pure white sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta crystals, £19. per ton; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; hydrate of barium, £11. per ton.

South Durham salt unaltered at 10s. per ton, f.o.b. Tees.

Coals: Steady, fair business doing. Best Northumbrian steam, 10s. and 10s. 3d. per ton f.o.b.; small steam, 4s. and 4s. 3d. per ton f.o.b.; best Durham gas coals 8s. 6d. per ton f.o.b.; coke, rather quiet, 16s. 6d. and 17s. per ton; bunker and house coals weaker, poor demand.

## LIVERPOOL OIL AND COLOUR MARKET.

LIVERPOOL, WEDNESDAY.

OILS.—Palm oil is quieter, and prices are easier; to-day sales are few, but prices remain stationary. Olive has been moving pretty freely at from £32. 10s. to £38. It is somewhat slower of sale to-day. Linseed rules at from 20s. 3d. to 20s. 6d. per cwt. in export casks, at which price it is very firm. Cotton seed oil is steady; Liverpool refined is quoted 19s. 6d. per cwt., and American 20s. If anything, there is a slight tendency for Liverpool refined to weaken in price. Castor oil: good seconds Calcutta is now selling at 2½d to 2 9/16d. per lb., while first pressure French is quoted 2 11/16d. to 2 9/16d., at which it is steady. There is a fair enquiry for tallow, and the market is steady. Resin, common, though now at 4s. per cwt. is still quiet and slow of sale. Spirits of turpentine may be quoted 23s. per cwt., at which there is but little doing. American petroleum is quoted 4⅝d. to 6¼d. per gallon, according to quality. Russian refined 4⅜d. to 4½d. per gallon.

COLOURS.—Prices continue unaltered. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s., medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: common, £6.; medium, £10.; finest, £20.

## TAR AND AMMONIA PRODUCTS.

Benzol remains very flat and prices may be quoted as 1s. 8d. for 90's, and 1s. 3½d. for 50-90's, though perhaps requirements could be secured at 1s. 3d. Anthracene is but little enquired for and there is no change in prices; 30% A being nominally 10d. and 30% B 7½d. Pitch remains firm, but most other tar products are neglected.

The sulphate of ammonia market has been very quiet this week and the amount of business transacted exceedingly small, still, owing to the small quantity in the market, the figures show very little alteration. Hull and Leith quotations are £9. 18s. 9d. to £10., and £10. f.o.b. Liverpool, though it is stated that business has been done below these figures. Beckton is nominally £10. 2s. 6d., while outside makes are variously quoted from £9. 17s. 6d. to £10.

## THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron has varied little; Scotch warrants closed at 41s. 3d. cash. Middlesbrough 40s. 3d. cash, and Hematite 49s. 6d. cash. Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s closed at £44. 10s. cash, and £45. to £45. 7s. 6d. three months. Tin quiet, but steady: Straits closed at £95. to £95. 10s. cash, and £95. 5s. three months. Australian, £95. 15s. cash. English ingots, £98. to £99. Lead steady: Spanish, £10. 11s. 3d.; English, £10. 15s to £13. Silesian spelter, ordinary, £21. 10s. Quicksilver, £7. 2s. 6d., first hands, £6. 19s. second hands. Copper shares: Cape, 1 9/16 to 1 11/16; Copiapo, 2 5/16 to 2 7/16; Libiola, 2¼ to 3; Mason and Barry, 3 13/16 to 3 15/16; Rio Tinto, 15½ to 15⅝; Tharsis, 4 9/16 to 4 11/16; Namaqua, ¾ to 1; Panulcillo, ⅜ to ½.

GLASGOW, WEDNESDAY.—Market easier, with small business. Scotch done at 41s. 3½d. cash, and 41s. 5d. one month, closing with buyers at 41s 2½d. cash, and 41s. 4½d, one month; sellers ask 1d. more. Middlesbrough closes with buyers at 40s. 3d. cash, sellers ask 40s. 6d. Hematite closes with buyers at 49s. 6d. cash; sellers ask 50s.

WOLVERHAMPTON, WEDNESDAY.—At the quarterly meeting this afternoon the attendance was limited and business was quiet. Twenty-eight furnaces were reported to be blowing in South Staffordshire out of a total of eighty-one built. All-mine hot blast pigs were quoted 62s. 6d., or slightly lower than in January, and part mines were about 1s. 6d. below that month. Wingerworth were quoted 45s., and Thorncliffe 50s. Marked bars unchanged at £8.; mild steel plates, £6. 10s., with good trade; Durham foundry coke, 24s. 6d., delivered; Yorkshire foundry coke 18s. upwards.

## REPORT ON MANURE MATERIAL.

During the week there has not been much business passing either in phosphatic or nitrogenous material. Prices in the main are without alteration.

There are sellers of 75/80% Florida rock at 9d. per unit, but U.K. buyers do not seem inclined to give the price. Florida Land pebble rock, 60/65%, offers at 7¼d, and hot-air dried Peace River, 60%, at 7½d. per unit. For hot-air dried South Carolina River rock nearest value is probably 7¼d., and for Land rock 7d. per unit. Other descriptions are without alteration.

A small cargo of crushed Rosario bones near at hand has been sold at £4. 5s., and this price would have to be paid for any cargo for shipment. Crushed East India bones are rather easier, buyers being in no hurry to cover their requirements, and home-collected bones being in large supply and relatively cheap. Bombay bone meal continues to offer for shipment at £4 5s., basis fair average quality, without inducing business. On spot prices range from £4. 2s. 6d., for inferior, to £4. 10s. for fine quality. Good clean hard bones suitable for charring are in demand at £4. to £4. 2s. 6d. ex quay Liverpool.

The market for nitrate of soda is quiet, but very firm. On spot the price for ordinary quality is 8s. 3d. per cwt., and for refined 8s. 6d. Due cargoes are worth 8s. 2¼d. to 8s. 3d. for ordinary quality, and 8s. 4½d. for refined. May and June shipments are worth 8s. 4½d. to 8s. 6d. per cwt., according to sailing date, and later sailings 8s. 7½d. to 8s. 9d., but at the moment buyers are shy about paying these prices.

Being off season there is practically nothing doing in miscellaneous manure material.

## MISCELLANEOUS CHEMICAL MARKET.

Business generally in the chemical trade during the past week has been anything but satisfactory. Most articles remain unaltered so far as prices are concerned. Bleaching powder in fair request at £7. 10s., rails, makers' works. £7. 5s. is still quoted for contracts. Caustic soda quiet at former prices. Soda ash rather more plentiful, but the price is firm and unaltered. Soda crystals dull at £3. 5s., casks or barrels; £2. 18s. for bags, rails. Salt cake moves slowly, but price is, if anything, easier. Chlorate of potash steady at 6¾d. Soda very scarce at 8d. Nitrate of soda continues quiet at 8s. 3d. to 8s. 4½d. Litharge dull at £14. 5s. Lead salts neglected, and price nominally for foreign white acetate remains at £25. 10s., c.i.f., but no business worth mentioning is passing: Brown, £17.; English white, £27. 5s. Nitrate, £20. Sulphate of copper in better demand at £15. 5s to £15. 10s., f.o.b. Borax quiet at £29. nett. Bichromates of soda and potash sell but slowly at the advanced prices. Recovered sulphur is weaker; £5. per ton is the nominal quotation, but resale lots are offered at lower figures. Carbolic crystals without change, and business almost at a standstill. Crude carbolic, 60's and 70's, stronger. Sulphocyanides of ammonium and barium continue in fair request. We quote ammonium 7d., barium 5d. Potashes, caustic and carbonate, in brisk demand: prices, however, keep about the same, viz., £22. 10s. for caustic, 80/84%; £21. 12s. 6d. for 75/80%, and £18. for carbonate, 90/92%, c.i.f. Yellow prussiate of potash steady at 10d. to 10⅛d. per lb.

## THE LIVERPOOL MINERAL MARKET.

The firmness reported in the market last week has been maintained. Manganese: There have been two small arrivals this week. Prices, however, remain firm. Borate, 7d. per lb.; sulphate £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite: Raw lump, stocks large; prices flat. Raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand) firm at full prices; lump 20s., seconds 16s., and thirds 12s. French chalk: Arrivals still remain small. The demand, however, has been maintained at full figures. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump scarce at 90s. to 95s.; nuts, 70s. to 80s.; whilst finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumice stone steady. Iron ore steady; Bilbao and other shipments have changed hands at fair figures; Irish and Cumberland easier. Santander and manganiferous, there is more doing. Emerystone: Best brands in demand at full figures. No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal firmer. Chrome ore: High grades sought for at good figures. Antimony ore and metal flat; prices firmer. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. 10s. Calamine quiet. Strontia sulphate (celestine) quiet. Limespar is steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese somewhat easier, but prices are unchanged. Plumbago brisk. Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady; common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) steady; finest quality 22s. to 23s.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, Tuesday.

Business has suffered indirectly from the protracted general election turmoil; and the local holidays follow immediately with their usual annual disgearing effects, but apart from these influences the market is just as it was,—rather dull and inactive. Price changes on the ordinary chemicals are confined to one or two lines only, and of no moment. Most of the works stop production on Thursday or Friday of this week, and some of them will not resume for a week or more.

Since the late concerted rise in bichromate of potash and bichromate of soda, buying has been feeble, and consumers find it difficult to get over their displeasure. There are rumours of new works starting to operate outside of the combination, and to shade combination prices.

Sulphate of ammonia is if anything weaker again; and the feeling amongst operators is less hopeful. Highest prompt value to-day is £9. 17s. 6d., but mean value by some buyers is held to be £9. 15s. to £9. 17s. 6d.

In the paraffin section there is no change of price, and no [illegible] activity. Till the meeting between makers and users of solid [illegible] comes off there will be no movement. Buying is still practically [illegible] existent, and stocks accumulate.

Chief prices current are:—Soda crystals, £2. 17s. 6d., nett; [illegible] alum in lump, £5. 10s., nett Glasgow; soda ash, 1⅝d., [illegible] Tyne; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60[illegible] £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liver[illegible] bicarbonate of soda, 5 cwt. casks £6. 7s. 6d. and 1 cwt. casks £6. [illegible] nett Liverpool; refined alkali, 1⅝d., nett Tyne; bleaching po[illegible] £7. 10s. to £7. 12s. 6d. nett Tyne; saltcake, 36s. 6d.; borax, E[illegible] refined, £29. and boracic acid, £37. 10s. nett Glasgow; bichr[illegible] of potash, 4½d. nett, for Scotch and English deliveries (for [illegible] 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for S[illegible] and English deliveries (for export 3½d. nett f.o.b. Glas[illegible] chlorate of potash, 6⅝d., less 5% any port; nitrate of [illegible] 8s. 3d.; sulphate of ammonia, £9. 17s. 6d. f.o.b. L[illegible] salammoniac, first and second white, £35. and £33., less [illegible] any port; sulphate of copper, £15. 2s. 6d., less 5% Liverpool; p[illegible] scale (hard), 2 15/16d., and soft 2 15/16d. to 3d. per lb.; paraffin [illegible] 120°, semi-refined, 3⅝d. to 4d.; paraffin spirit (naphtha), [illegible] gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to [illegible] at works, for Scotch buyers (English sales about 1d. lo[illegible] ditto (lubricating), 865°, £3. 5s. to £3. 15s., 885°, £4. 10s. to [illegible] and 890/895°, £5. to £7. Week's imports of raw sugar at Gre[illegible] were 45,722 bags.

## New Companies.

Briggs and Co., Limited.—This company was registered on the 6th ins[illegible] a capital of £2,000., in £1. shares, to acquire and carry on the business of [illegible] merchant and chemist carried on by Mr. W. H. Briggs, at Market-street, [illegible] Bridge, Yorks., and with a view thereto to adopt an agreement dated June [illegible] between Mr. W. H. Briggs of the one part, and Mr. T. Briggs (for the com[illegible] the other part.

Chemists' Association, Limited.—This company was registered on the [illegible] with a capital of £50,000., in £1. shares, to carry on the business of w[illegible] chemists and druggists, druggists' sundriesmen, and patent-medicine manuf[illegible] and vendors; to acquire the goodwill of the business of wholesale chem[illegible] druggists carried on at Curtain-road, Gt. Eastern-street, London, under the [illegible] "Thompson, Walters, Hole and Co., Ltd.," and with a view thereto to en[illegible] an agreement with the said company. The subscribers are:—

S[illegible]

M. Magor, 126, Corporation-street, Birmingham, chemist .....
W. Corbett, Bromsgrove, Worcester, chemist .....
R. Walton, High-street, Maidenhead, chemist .....
W. Hole, Curtain-road, E.C. .....
T. Fawssett, 36, Cambridge-road, Lee, Kent, chemist .....
L. Walters, Curtain-road, E.C. .....
R. Paull, Grove Hill-road, Handsworth, Birmingham .....

Hayfield Printing Co., Limited.—This company was registered on [illegible] inst., with a capital of £45,000., in £10. shares, to acquire and take over as [illegible] concern the business of bleaching and calico printing now carried on by [illegible] Buckley, under the style of the "Hayfield Printing Co.," at Hayfield, De[illegible] at 52, Moseley-street, Birmingham, and, with a view thereto, to adopt an ag[illegible] dated June 3, 1892, between Mr. A. Buckley of the one part, and Mr. A. [illegible] penny (for the company) of the other part. The subscribers are:—

S[illegible]

A. Buckley, Ryecroft Mill, Ashton-under-Lyne, manufacturer .....
R. Herd, West Brook, Edge-lane, Chorlton-cum-Hardy .....
T. Parry, Grafton House, Ashton-under-Lyne .....
A. B. Wimpenny, Oak Villa, Hayfield, calico printer .....
J. Lithgow, South View, Hayfield .....
W. Garner, Sycamore-terrace, Hayfield .....
T. E. Capstick, Lucas-terrace, Hayfield, millwright .....

## The Patent List.

*This list is compiled from Official sources in the Manchester T[illegible] Laboratory, under the immediate supervision of George E. Da[illegible] Alfred R. Davis, who report professionally upon the value of C[illegible] Patents.*

### APPLICATIONS FOR LETTERS PATENT.

**Bleaching Cotton, etc.** W. Crippin and C. O. Weber. 11,914. June [illegible]
**Dyeing of Alizarine Red on Cotton, etc.** W. Crippin and C. O. Weber. June 27.
**Dyeing of Aniline Black on Cotton, etc.** W. Crippin and C. O. Weber. June 27.
**Non-Corrosive Composition Paint.** R. Michell. 12,937. June 27.
**Improvements in Lubricators.** D. Doody. 11,961. June 27.

**Purifying Water.** C. G. Collins. 11,989. June 28.
**Aneroid Barometers.** L. Comitti. 12,001. June 28.
**Smoke Consuming Furnaces.** G. S. Riley. 12,017. June 28.
**Separating Metallic from Non-Metallic Substances.** C. Raleigh. 12,030. June 28.
**Automatic Supply of Electricity.** G. H. Jones. 12,044. June 28.
**Extracting Heat from Products of Combustion.** T. Mudd. 12,054. June 28
**Rendering Salt more Valuable for Dietetic and other Purposes.** G. Weddell. 12,063. June 29.
**Improved "Bunsen" Gas Burner.** J. Scott and H. Darwin. 12,066. June 29.
**Automatically Cutting of the Supply of Steam, etc., to a Vat or Vessel of Fluid when the latter has been Raised to the Required Temperature.** W. Ackroyd. 12,068. June 29.
**Manufacture of Carbonic Acid Gas.** H. S. Elworthy and J. Pullman. 12,155. June 30.
**Manufacture of Lactylderivatives of Methylaniline, Ethylaniline, Para-anisidine, and Paraphenetidine.** C. D. Abel. 12,166. June 30.
**Artificial Stone.** O. Terp. 12,174. June 30.
**Enamel Paints for Resisting Damp, Fire, etc.** O. Terp. 12,175. June 30.
**Improvements in Brick Kilns.** O. G. H. Stifft. 12,215. July 1.
**Improvements in Gas Generators.** B. H. Thwaite. 12,229. July 1.
**Apparatus for Producing and Utilising Electric Currents.** B. Scheithauer. 12,238. July 1.
**Machines for Crushing Ores, etc.** M. E. Villeroy. 12,255. July 1.
**Preparation of Sewage Sludge for Pressing.** S. H. Johnson and C. C. Hutchinson. 12,268. July 2.
**Improvements in the Manufacture of Chlorine.** H. W. Wallis. 12,294. July 2.
**Production of Azo Colouring Matters.** Read Holliday and Sons, Ltd. and J. Turner. 12,296. July 2.
**Secondary Batteries.** J. B. Lee. 12,306. July 2.
**Artificial Stone or Cement.** H. H. Lake 12,331. July 2.
**Wet Upward Current Separators for Treating Metals, Ores, etc.** W. S. Lockhart. 12,333. July 2.

# Gazette Notices.

## PARTNERSHIPS DISSOLVED.

H. HILLS AND C. H. HILLS, under the style of Henry Hills and Son, Amlwich Anglesea, manufacturing chemists and Low Walker-on-Tyne, Northumberland, copper smelters.

B. HEPWORTH AND W. CHADWICK, under the style of Hepworth and Chadwick Kidderminster, chemical manufacturers.

C. E. WICKS AND J. T. WICKS, under the style of C. E. and J. T. Wicks, Lower Edmonton, Middlesex, indiarubber manufacturers.

## BANKRUPTCY ACTS, 1883 and 1890.

### Receiving Orders.

DIXON, THOMAS EDWARD, Vauxhall-bridge-road, S.W., oilman and drysalter.

HALLSWORTH, JOHN WILLIAM, Armley, Leeds, manager of chemical works.

### Adjudication.

DIXON, THOMAS EDWARD, Vauxhall-bridge-road, S.W., oilman and drysalter.

HALLSWORTH, JOHN WILLIAM, Armley, Leeds, manager of chemical works.

ZIMMERMANN, CHARLES HERMANN (lately trading as the Sozon Oil Co.), Crumpsall, Manchester, merchant and manufacturer.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending July 2nd.*

**Acetate of Lime—**
U. States, 449 pkgs. H. Wallace & Co.

**Acetone—**
Holland, 1 pkg. T. Palmer

**Alkali—**
France, 206 c. P. Hecker & Co.
Germany, 10 T. H. Lee
France, 420 Arnati & Harrison

**Alum—**
Holland, 145 pkgs. Ohlenschlager Bros.

**Antimony—**
Australia, 12 t. D. J. Keymer & Co.
Sydney, 39 Drolenvaux & Bremner
France, 12 Vivian, Younger, & Co.

**Asbestos—**
Germany, £8 Phillipps & Graves

**Barytes—**
Holland, 87 cks. Union L. Co., Ltd.
Belgium, 16 J. L. Lyon & Co.
" 20 P. Jantzen
" 7 Leach & Co.
Germany, 38 Burrell & Co.

**Borax—**
France, 5 pkgs. Page, Son, & Co.

**Bromine—**
Germany, 192 pkgs. A. & M. Zimmermann

**Caoutchouc—**
Ceylon, 9 c. L. & I. D. Jt. Co.
Zanzibar, 116 Clarke & Smith
" 17 L. & I. D. Jt. Co.
Singapore, 100 "
Ceylon, 53 Somes & Co.
U. States, 4 J. Walker & Co.
" 35 Flageollet & Co.
Germany, 3 L. & I. D. Jt. Co.
Penang, 48 "

**Carbolic Acid—**
Holland, 25 pkgs. Volcanic Æration Co.

**Caustic Potash—**
Belgium, 20 cks. Forwood Bros. & Co.
France, 21 drs. Beresford & Co.
" 12 pkgs. Spies Bros. & Co.

**Caustic Soda—**
Belgium, 70 c. Beresford & Co.

**Chemicals** (*otherwise undescribed*)
Germany, 7 pkgs. Phillipps & Graves
Holland, £15 "
U. States, 1 pkg. Burgoyne & Co.
" 51 T. H. Lee
" 30 A. & M. Zimmermann
Germany, 2 L. & I. D. Jt. Co.
" 33 T. H. Lee
" 22 A. & M. Zimmermann
" £18 Domeier & Co.

**Citrate of Lime—**
Italy, 30 cks. Harvey, Lockie, & Co.

**Cream of Tartar—**
France, 6 pkgs. G. Ward & Sons
" 5 J. Puddy & Co.
" 14 Smith, Abbott, & Co.
" 9 B. & F. Wf. Co., Ltd.
Spain, 16 W. C. Bacon & Co., Ltd.
" 5 B. & F. Wf. Co., Ltd.
Italy, 10 Fellows, Morton, & Co.

**Dyestuffs—**
**Aniline**
Holland, 11 pkgs. Phillipps & Graves
**Argols**
Italy, 66 pkgs. Thames S. T. & L. Co., Ltd.
" 2,805 B. Jacob & Sons
**Cochineal**
Canaries, 38 pkgs. Hammond & Co.
" 12 Swanston & Co.
" 8 G. S. Bruce
" 6 W. M. Smith & Sons
**Extracts**
Canada, 240 pkgs. A. J. Humphrey
U. States, 50 L. J. Levinstein & Sons
France, 5 J. Brown & Son
Belgium, 6 H. Johnson & Sons
France, 73 Carey & Sons
Belgium, 25 Leach & Co.
**Gambier**
Singapore, 1,733 pkgs. L. & I. D. Jt. Co.
" 204 R. & J. Henderson
" 424 J. H. & J Scovell
" 281 S. Barrow & Bros., Ltd.
" 3,690 Adamson, Gilfillan & Co.
**Indigo**
E. Indies, 14 chts. L. & I. D. Jt. Co.
" 11 R. von Glehn & Son
Germany, 1 cs. Andreae & Co.
**Myrabolams**
E. Indies, 296 pkgs. Beresford & Co.
**Saffron**
Spain, 1 pkg. Major & Field
France, 1 G. W. Wheatley & Co.
**Sumac**
Italy, 500 pkgs. J. Kitchin, Ltd.
" 50 W. Shelcott
" 150 G. S. N. Co.
" 100 F. Roberts
**Turmeric**
E. Indies, 25 pkgs. L & I. D. Jt. Co.
China. 100 Union L. Co., Ltd.
E. Indies, 96 Major & Field
**Valonia**
A. Turkey, 100 t. M. D. Co.

**Dyestuffs** (*otherwise undescribed*)
France, 15 pkgs. Skilbeck Bros.

**Farina—**
Holland, 40 pkgs. J. Knill & Co.
" 100 R. G. Hall & Co.
Belgium, 40 "

**Ferric Chloride—**
Germany, 1 pkg. Pickford & Co.

**Glucose—**
U. States, 750 pkgs. 750 c. J. Barber & Co.
" 750 750 c. L. Norman & Co.
" 125 750 Soundy & Sons
" 25 138 Fellows, Morton, & Co.
" 500 500 J. Knill & Co.
Holland, 8 64 "
U. States, 1,350 3,102 R. G. Hall & Co.
" 150 906 W. Isted
" 50 275 A. B. Curtis & Co.
" 285 1,625 L. Sutro & Co.
" 100 531 W. Balchin
" 50 138 J. Leete & Sons
" 120 660 T. M. Duche & Sons
" 130 781 Page, Son, & East
" 600 600 L. & I. D. Jt. Co.
" 250 1,375 Prop. Chmbln.'s Wf.

**Glycerine—**
Germany, £23 Beresford & Co.
U. States, 25 A. & M. Zimmermann
Germany, 12 E. Kislingbury & Co.
France, 117 H. Hill & Sons

**Guano—**
Australia, 880 t. W. Montgomery & Co.

**Magnesium—**
Germany, 1 pkg. Phillipps & Graves

**Manure—**
Belgium, 3 pkgs. T. H. Lee

**Methyl Alcohol—**
Germany, 5 cks. Elkan & Co.
Italy, 1 H. Lorenz

**Mica—**
Ceylon, £45 W. M. Smith & Sons
Adelaide, 20 F. Braby & Co.

**Ochre—**
France, 54 cks. M. Ashby, Ld.
" 128 W. Grose & Co.
" 128 brls. Anderson, Weber, & Smith
" 121 C. F. Gerhardt

**Painters' Colours—**
Germany, 27 pkgs. L. & I. D. Jt. Co.
N. Zealand, 160 "
Holland, 1 J. Owen
" 6 Phillipps & Graves
Belgium, 10 T. Palmer
France, 14 Flageollet & Co.
" 31 Magee, Taylor, & Co.
Germany, 8 Craven & Co.
" 10 C. S. Lovell
" 40 W. J. Pattison & Co.
" 8 Phillipps & Graves
Belgium, 2 Leach & Co.
" 24 Arnati & Harrison
U. States, 2 Elkan & Co.
Germany, 18 1 ck. T. H. Lee
Singapore, 8 L. & I. D. Jt. Co.

**Paraffin Wax—**
U. States, 1,000 brls. J. H. Usmar & Co.
" 85 Davy & Goulden
" 106 cs. Williams, Torrey, & Co.

**Phosphate Rock—**
France, 130 t. Lawes Manure Co., Ltd.
Belgium, 156 Odams Chemical Manure Co.
U. States, 1,050 Wyllie & Gordon
Holland, 50 Lawes Manure Co, Ltd.
Jamaica, 1,050 Odams Chemical Manure Co.
Belgium, 285 Anglo-Contl. G. Wks.

**Picric Acid—**
Germany, 4 pkgs. R. White

**Plumbago—**
Ceylon, 350 brls. J. Thredder, Son, & Co.
" 34 J. Cooper
Germany, 17 cks. B Gallaway
" 6 P. Hecker & Co.

**Potash—**
Germany, 12 pkgs. Prop. Dowgate Dk.
France, 100 c. F. W. Berk & Co., Ltd.
,, 9 Weatherley, Mead, & Co.

**Potassium Bicarbonate—**
Holland, 1 pkg. A. & M. Zimmermann

**Potassium Carbonate—**
France, 40 c. J. A. Reid

**Potassium Sulphite—**
U. States, 20 pkgs. Petri Bros.
France, 99 ,,
,, 250 F. W. Berk & Co., Ltd.

**Rosin—**
U. States, 400 brls. F. & S. Chiseman & Co.
Holland, 11 Magee, Taylor, & Co.

**Saltpetre—**
Germany, 3 cks. Craven & Co.
,, 70 T. Merry & Sons
,, 58 P. Hecker & Co.

**Soda—**
Holland, 219 c. J. Owen

**Sodium Acetate—**
France, 9 pkgs. S. F. Waters & Co.

**Sodium Hyposulphite—**
Holland, 28 pkgs. R. W. Greeff & Co.

**Stearine—**
France, 72 bgs. Beresford & Co.
Holland, 331 H. Hill & Sons
France, 222 Beresford & Co.
Belgium, 13 C. S. Lovell

**Sulphur—**
Italy, 20 t. C. J. Capes & Co.
,, 5 J. Houghton & Sons
,, 20 G. Boor & Co.
,, 50 W. C. Pantin
,, 30 F. Smith
,, 25 Johnson & Hooper
,, 10 F. & L. Sitzler
,, 10 J. Knill & Co.

**Talc—**
Ceylon, £85 J. Cooper
E. Indies, 475 W. M. Smith & Sons

**Tallow—**
Melbourne, 127 cks. Elkan & Co.
France, 61 H. Grey, jun.
N. Zealand, 69 Nelson Bros.
Sydney, 41 ,,
,, 49 Coml. Banking Co. of Sydney
,, 170 Hoare & Co.
,, 429 Anning & Cobb
,, 122 H. Lambert
,, 16 J. Morrison & Co.
,, 123 Elkan & Co.
,, 48 Leach & Co.
,, 84 Cuthbert & Hall
,, 134 J. Greig
,, 162 Ross & Deering
,, 56 A. G. Anderson
N. Zealand, 206 N. Z. L. & M. A. Co.
Melbourne, 185 H. Lambert
,, 75 Cuthbert & Hall
,, 283 Grosscurth & Luboldt
Sydney, 405 Pillow, Jones, & Co
,, 42 Hicks, Nash, & Co.

**Tar—**
Belgium, 5 brls. Sawer, Mead, & Co.

**Tartaric Acid—**
Holland, 10 pkgs. B. & F. Wf. Co., Ltd.
,, 9 Northcott & Sons

**Ultramarine—**
Belgium, 1 ck. Leach & Co.
Germany, 5 cs. Haeffner, Hilpert, & Co.
Holland, 11 ,,
Germany, 18 pkgs. G. Steinhoff
,, 5 J. Kitchin, Ltd.

**Varnish—**
U. States, 3 pkgs. L. & I. Dk. Co.
Belgium, 8 Stobbs, Wilson, & Co.
Holland, 4 Phillipps & Graves
France, 16 Flageollet & Co.

**Vermilion—**
Hong Kong, 10 cs. Blundell & Co.

**White Lead—**
Holland, 45 cks. Union L. Co., Ltd.
,, 61 Phillipps & Graves
Germany, 19 Randall Bros.
,, 19 N. J. Fenner & Co.
,, 50 Elkan & Co.
Holland, 19 A. & M. Zimmermann
France, 10 J. Watt & Sons
Germany, 27 W. Croft
,, 20 Magee, Taylor, & Co.
Holland, 8 Robinson, Roberts, & Co.
,, 21 M. Ashby, Ltd.
Belgium, 18 A. Zumbeck & Co.

**Zinc Oxide—**
Holland, 35 brls. J. Owen
,, 625 cks. Soundy & Sons
Germany, 43 M. Ashby, Ltd.
U. States, 150 ,,
Holland, 50 ,,

## LIVERPOOL.

*Week ending June 30th.*

**Acetate of Lime—**
New York, 1,366 bgs.

**Acetic Acid—**
Rotterdam, 17 btls.

**Antimony Oxalate—**
Rotterdam, 1 ck.

**Antimony Salt—**
Hamburg, 1 ck.

**Boracic Acid—**
Leghorn, 9 cks.

**Carbonic Acid Gas—**
Rotterdam, 25 tubes.

**Chemicals** (*otherwise undescribed*)
Hamburg, 2 cks. 1 cs.

**Caustic Potash—**
Dunkirk, 46 dms.

**Caoutchouc—**
Havre, 1 ck. 4 brls. Cunard S. S. Co., Ltd.

**Colours—**
Rotterdam, 37 cks. 7 cs.

**Cream of Tartar—**
Bordeaux, 3 cks.
Rotterdam, 18 20 kgs.

**Dyestuffs—**
**Argols**
Oporto, 23 cks. German Bank of London
**Cochineal**
Teneriffe, 32 bgs. Sperling & Williams
Gd. Canary, 7 Widow, Duranty, & Son
**Divi Divi**
Hamburg, 1 cs.
**Extracts**
New York, 112 bxs.
Colon, 1 cs. Jimenez & Sons
Bordeaux, 300 cks.
Baltimore, 12 brls. R. Schloesser & Sons
Fiume, 442
**Fustic**
Colon, 1,854 ps. Hughes, Treleaven & Co.
Laguna de Terminos, 40 qntls. Seetzen Bros.
**Indigo**
Havre, 2 brls. Cunard S. S. Co., Ltd.
In transit, 5 chts.
**Sumac**
Limasol, 816 bgs.
Palermo, 1,125
,, 150 J. Kitchin
**Valonia**
Syra, 306 bgs. Papayanni & Jeremias
Smyrna, 204 t. Barry Bros.
,, 81 P. T. Apostolo
,, 100 1 bg.

**Farina—**
Fiume, 320 sks.
Hamburg, 16
Amsterdam, 1 ck.

**French Chalk—**
Rouen, 4 cs. Co-op. W'sale Society, Ltd.

**Glucose—**
New York, 425 brls.
Rouen, 10 cks. Co-op. W'sale Society, Ltd.

**Glycerine—**
Rotterdam, 1 dm.

**Iron Oxide—**
Trieste, 6 brls. Gabain Bros.
,, 11

**Manganese—**
Coquimbo, 984 t.
Carthagena, 1,600
Bordeaux, 16 cks.
Rotterdam, 9

**Mineral White—**
Trieste, 200 bgs. Schroeder & Co.

**Ochre—**
New York, 211 brls.

**Paint—**
Boston, 56 cs. Balr, Behrend, & Ross
,, 40

**Phosphate—**
Antwerp, 355 t.
Aruba, 320 Isaac & Samuel

**Phosphoric Acid—**
Hamburg, 6 cks.

**Pitch—**
Bordeaux, 58 cks.
Amsterdam, 40

**Potash—**
Rouen, 48 cks. Co-op. W'sale Society, Ltd.
Dunkirk, 29 23 dms.
Hamburg, 10 brls.

**Potassium Carbonate—**
Hamburg, 36 cks.

**Pyrites—**
Huelva, 5,540 t. T. Matheson & Co.
,, 50 Peyton & Son
,, 300 Higginbottom & Son
,, 300 T. Levinstein & Son
,, 830 T. & W. Southern

**Rosin—**
Baltimore, 750 brls.
Ceara, 196 bgs. Leach, Harrison, & Co.
New York, 250 brls.

**Saltpetre—**
Calcutta, 156 bgs.

**Salicylic Acid—**
Hamburg, 5 cs.

**Soap—**
Montreal, 1 cs.
Leghorn, 250 bxs. Weaver & Stevens

**Soapstone—**
Bordeaux, 270 bgs. G. G. Blackwell

**Soda—**
Smyrna, 10 brls.
Rotterdam, 8

**Stearine—**
New York, 81 hds.

**Sulphur—**
Catania, 100 brls. 100 bgs.

**Tallow—**
New York, 178 tcs. T. M. Marc & Co.
,, 180 299 hds.
Boston, 158
B. Ayres, 250
Philadelphia, 170 25 50 cks.

**Tar—**
Wilmington, 3,474 brls.

**Tartar—**
Bordeaux, 24 cks.
Naples, 3

**Tartaric Acid—**
Rotterdam, 8 cks. 25 kgs.

**Tincal—**
Calcutta, 208 bgs.

**Ultramarine—**
In transit, 50 cs.
Hamburg, 5
Rotterdam, 9

**White Lead—**
Rotterdam, 6 cks.

**Zinc Oxide—**
New York, 100 brls.
Rotterdam, 75 cks.

## GLASGOW.

*Week ending July 7th.*

**Aluminium—**
Antwerp, 1 cs.

**Barytes—**
Rotterdam, 46 cks.
,, 98 J. Rankine & Son

**Barytes Sulphate—**
Antwerp, 400 bgs.

**Bleaching Powder—**
New York, 100 bxs.

**Colours—**
Rotterdam, 5 cks. 2 cs. J. Rankine & Son
Hamburg, 4

**Cream of Tartar—**
Rotterdam, 6 cks. J. Rankine & Son

**Dyestuffs—**
**Alizarine**
Rotterdam, 145 cks.
**Argols**
Bordeaux, 117 bgs.
**Extracts**
Antwerp, 1 ck.

**Glucose—**
New York, 350 brls.
Philadelphia, 50

**Ochre—**
Bordeaux, 15 cks.

**Paint—**
New York, 1 ck. 1 brl.

**Paraffin Wax**
Philadelphia, 500 brls.

**Potash—**
Rotterdam, 34 cks J. Rankin

**Potassium Prussiate—**
Hamburg, 22 cks.

**Pyrites—**
Huelva, 1,725 t. Th

**Rosin—**
Savannah, 1,801 brls. W. N. Ge

**Soap—**
Philadelphia, 400 bxs. 26 crts.

**Tartar—**
Bordeaux, 27 cks.
Oporto, 6

**Tartar Emetic—**
Hamburg, 4 cks.

**Turpentine—**
Savannah, 1,100 brls. Rowley

**Waste Salt—**
Hamburg, 2,540 bgs.

**White Lead—**
Rotterdam, 27 cks.
Antwerp, 16
Rotterdam, 50 J. Rankine

**Zinc White—**
Rotterdam, 150 cks. J. Rankine

## HULL.

*Week ending July 2nd*

**Acetate of Lime—**
New York, 466 bgs. Wilson, C

**Acetic Acid—**
Rotterdam, 18 pks. W. & C. I

**Asbestos—**
Genoa, 4 cs. Wilson, Sons

**Barytes—**
Rotterdam, 23 cks. Blundell,
Antwerp, 11 H. F
Bremen, 46
,, 44 Tudc
,, 23 105 bgs.
Rotterdam, 12 G. Lawsc
,, 24 Hanger, V
Antwerp, 144

**Caoutchouc—**
Hamburg, 3 cs. C. M.

**Chemicals** (*otherwise unde*
Rotterdam, 5 cks. G. Laws
Copenhagen, 3 Wilson, Sons,
Bremen, 1 cs. Veltm
Dunkirk, 75 pks. Wilson, So
Hamburg, 8 cks.
Antwerp, 150 pks.

**Colours—**
Antwerp, 59 cks. Bailey &
,, 1 Hanger, V
Rotterdam, 4 4 cs. G.
Stettin, 10 cks. Wilson, So
Bremen, 4 1 cs Veltm
Rotterdam, 1 2 G. Law
,, 1 A. Sander
,, 2 1 brl.
Spen
Flushing, 198 13 cs. Zee
Antwerp, 49 brls. Wil &
,, 40
Rotterdam, 18 30 pkgs. W

**Cream of Tartar—**
Marseilles, 2 cks. Wilson, Son
,, 5

**Dyestuffs—**
**Alizarine**
Rotterdam, 5 brls. G. Lawson & Sons
" 29 cks. W. & C. L. Ringrose
**Aniline**
Flushing, 1 ck. Zeeland S. S. Co.
**Argols**
Bari, 4 cks. Wilson, Sons, & Co., Ltd.
**Myrabolams**
Bombay, 3,572 bgs.
**Sumac**
Palermo, 287 bgs. Wilson, Sons, & Co., Ltd.
" 250
**Valonia**
Smyrna, 473½ t. 524 bgs.
**Farina—**
Harlingen, 750 brls.
Rouen, 50 bgs. Rawson & Robinson
Ghent, 120 cs. Wilson, Sons, & Co, Ltd.
**Glucose—**
New York, 250 bgs. 320 brls.
Rotterdam, 50 Hutchinson & Son
" 17 cks. G. Lawson & Sons
**Naphtha—**
Ghent, 10 cks. Wilson, Sons, & Co., Ltd.
**Ochre—**
Rouen, 24 cks. Rawson & Robinson
Marseilles, 40 Wilson, Sons, & Co., Ltd.
" 51

**Paint—**
Christiania, 5 cs.
Marseilles, 2 Wilson, Sons, & Co., Ltd.
**Phosphate—**
Antwerp, 200 bgs.
**Pitch—**
Rotterdam, 132 cks. G. Lawson & Sons
**Plumbago—**
Hamburg, 6 cks. Furley & Co.
**Potash—**
Rotterdam, 2 bgs. G. Lawson & Sons
**Saltpetre—**
Hamburg, 50 bgs. Wilson, Sons, & Co., Ltd.
" 4 cks.
**Soap—**
Bari, 36 cs. Wilson, Sons, & Co., Ltd.
Marseilles, 20
**Soda—**
Rotterdam, 130 cks. Reckitt & Sons
**Sulphur—**
Catania, 596 brls. 169 pks. Wilson, Sons, & Co., Ltd.
" 30 pks.
**Tallow—**
Antwerp, 37 bgs. Wilson, Sons, & Co., Ltd.
**Tar—**
Archangel, 1,100 brls.
Konigsberg, 50

**Tartaric Acid—**
Rotterdam, 6 cks. W. & C. L. Ringrose
" 10 Hutchinson & Son
" 2 K. & B. Middleton
**Turpentine—**
Savannah, 2,712 brls.
**Ultramarine—**
Rotterdam, 1 ck. Hutchinson & Son
" 1 Storry, Smithson, & Co.
**White Lead—**
Rotterdam, 21 cks. Sissons Bros. & Co.
Antwerp, 39 Bailey & Leetham
Rotterdam, 34
" 18 Blundell, Spence, & Co.

## TYNE.

*Week ending July 2nd.*

**Alum Earth—**
Hamburg, 18 cks. Tyne S. S. Co.
**Barytes—**
Antwerp, 83 cks. Tyne S. S. Co.
**Potash—**
Hamburg, 3 cks. Tyne S. S. Co.
**Salt—**
Harburg, 557 t. Clephens & Wiencke
**Tartaric Acid—**
Rotterdam, 4 cks. Tyne S. S. Co.
**Zinc Oxide—**
Antwerp, 50 brls. Tyne S. S. Co.

## GOOLE.

*Week ending June 16th.*

**Caoutchouc—**
Boulogne, 1 cs. 4 cks. 2 pkgs.
**Dyestuffs** (*otherwise undescribed.*)
Boulogne, 3 pkgs. 49 cks. 37 cs.
**Phosphate—**
Ghent, 816 bgs.
**Potash—**
Calais, 94 dms. 12 cks.
Boulogne, 1 cs.
Hamburg, 10
Dunkirk, 32 1 jug
**Pyrites—**
Seville, 140 t.
**Saltpetre—**
Hamburg, 40 kgs.
**Waste Salt—**
Hamburg, 260 t. 210 bgs.

## GRIMSBY.

*Week ending June 20th.*

**Chemicals** (*otherwise undescribed*)
Hamburg, 1 pkg.
**Dyestuffs** (*otherwise undescribed*)
Dieppe, 25 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending July 6th.*

**Acid—**
Singapore, 10 drs. £11
**Alkali—**
Natal, 9 c. £14
Algoa Bay, 3 t. 10 140
Singapore, 5 5
**Aluminous Cake—**
Calcutta, 28 t. 3 c. £90
**Ammonium Carbonate—**
Bombay, 6 cs. £12
New York, 65 pkgs. 293
Cologne, 5 c. 8
**Ammonium Chloride—**
Bourgas, 10 c. £16
Constantinople, 13 20
**Ammonium Sulphate—**
Cheribon, 110 t. £1,155
**Bisulphide Carbon—**
Melbourne, 50 dms. £25
**Borax—**
Sydney, 10 t. £500
Oporto, 11 c. 16
**Carbolic Acid—**
Trinidad, 15 pkgs. £26
**Caustic Soda—**
Natal, 1 t. £24
E. London, 12 c. 23
Rio de Janeiro, 20 6 244
**Chemicals** (*otherwise undescribed*)
Capetown, 3 cs. £12
Natal, 4 7
Alexandria, 20 20
**Chloride of Lime—**
E. London, 11 c. £11
**Citric Acid—**
Bundaberg, 1 ck. £8
Bombay, 2 c. 20
**Coal Products—**
**Aniline**
Barcelona, 1 cs. £20
**Benzol**
Calais, 30 cks. £287
**Creosote**
Dieppe, 23,000 galls. £120
**Creosote Oil**
Treport, 30 brls. £71
**Cresylic Acid**
New York, 25 brls. £41
**Naphtha**
Sydney, 40 dms. £28
Treport, 26 cks. 60

**Nitro-Naphthalene**
New York, 1 kg. £4
**Paraffin Wax**
Hong Kong, 20 drs. £20
**Pitch**
Varna, 70 brls. £22
Cologne, 73 cks. 50
Antwerp, 146 t. 241
Boston, 250 brls. 122
**Pitch and Tar**
Thursday Island, 15 pkgs. £6
**Pyridine**
Hamburg, 13 cks. £113
**Tar**
Calcutta, 20 rnlts. £95
Dunedin, 10 dms. 17
Samarang, 100 brls. 50
Buenos Ayres, 125 85
**Tar Oil**
Paris, 50 cks. £170
Treport, 25 50
**Coal Products** (*otherwise undesc'd.*)
Sydney, 200 dms. £41
**Cream of Tartar—**
Cairus, 2 c. £9
**Disinfectants—**
Sydney, 19 cs. 6 pkgs. £87
Montreal, 7 38
Paris, 12 cks. 10
**Flowers of Sulphur—**
Algoa Bay, 15 t. 12 c. £176
**Manure—**
Salobrena, 222 t. 16 c. £1,784
Motril, 548 3 4,895
Penang, 3 6 50
**Mirbane Salts—**
New York, 6 cks. £75
**Oxalic Acid—**
Melbourne, 10 c. £15
Calcutta, 5 cs. 13
**Phosphoric Acid—**
Melbourne, 5 c. £36
**Potassium Chlorate—**
Lisbon, 5 cs. £101
**Saltpetre—**
Rosario, 2 t. 10 c. £55
Brisbane, 1 5 27
Syra, 3 8 70
Piræus, 1 5 26
Lisbon, 3 13 74
Rio de Janeiro, 14 19 337
**Salts of Soda & Lime—**
Montreal, 10 cs. 10 kgs. £234

**Sheep Dip—**
Natal, 8 cs. 200 drs. £56
Montreal, 2 10
B. Ayres, 1,200 3,600
Galveston, 4,400 6,600
Calcutta, 2 cks. 9
Sydney, 50 cs. 100
Port Elizabeth, 100 200
**Soda—**
Capetown, 1 t. 13 c. £6
**Soda Crystals—**
Fremantle, 5 t. 11 c. £19
Singapore, 7 1
**Soda Salts—**
New York, 1 t. 15 c. £18
**Sodium Bicarbonate—**
Kingston, 10 c. £5
S. Jose de Guata., 1 t. 8
**Sulphur Dioxide—**
New York, 6 cs. £30
**Sulphuric Acid—**
Sydney, 4 cs. £8
Melbourne, 4 7
Aden, 1 t. 15 c. 10
Rabat, 2 8
S. Jose de Guata, 8 cs. 6
**Superphosphate—**
Mauritius, 35 t. £356
**Tartaric Acid—**
Buenos Ayres, 24 cks. £132
Rosario, 20 kgs. 320

## LIVERPOOL.

*Week ending July 6th.*

**Acetic Acid—**
Lisbon, 18 c. £12
**Alum—**
Beyrout, 3 t. 10 c. £18
Alexandria, 18 10 98
Constantinople, 1 5
Montreal, 1 4 6
Santiago, 2 5 12
Valparaiso, 14 75
**Ammonium Carbonate—**
B. Ayres, 2 cs. £7
Copenhagen, 1 t. 17 c. 60
Lisbon, 10 14
Genoa, 1 15 49
**Ammonium Chloride—**
Constantinople, 3 t. 2 c. 3 q. £98
B. Ayres, 2 11 57

Newport News, 8 13 1 217
Patras, 6 10
Naples, 1 1 35
Philadelphia, 27 10 2 625
Valparaiso, 2 5 75
**Ammonium Sulphate—**
Barbadoes, 10 t. 6 c. £108
Barcelona, 40 405
Sourabaya, 153 17 2 q. 1,750
Samarang, 31 5 400
Gr. Canary, 24 2 246
Cheribon, 6 1 80
Genoa, 20 201
N. York, 100 11 2 1,029
N. Orleans, 51 10 2 502
**Aniline Salt—**
Mersyne, 1 brl.
**Bleaching Powder—**
Genoa, 10 cks.
Montreal, 16
New York, 9
Bombay, 10 cs.
Boston, 369
Calcutta, 75
Dunkirk, 19
Philadelphia, 56
**Boracic Acid—**
Havre, 5 t. 3 q. 178
**Borax—**
Barcelona, 1 t. 15 c. £54
Havre, 17 26
Ghent, 19 1 q. 29
B. Ayres, 100 cs.
Rouen, 31 cks.
Antwerp, 54
**Carbolic Acid—**
Montreal, 1 c. £14
Bilbao, 13 21
**Caustic Soda—**
Alexandria, 18 dms.
Alicante, 5
Bombay, 69
Cartagena, 95 5 brls.
Chicago, 15 25 bxs.
Dubuque, 50
Galatz, 2 t. 30
Ghent, 13
Hiogo, 300
Hong Kong, 25
Leghorn, 191
Milwaukee, 100 pkgs.
Naples, 35
New Orleans, 50
New York, 13

Rotterdam, 19
Rouen, 110
St. John's, Nfld., 6
San Francisco, 50
Valparaiso, 50
Antonina, 5
Bahia, 5
Baltimore, 64 cks. 270
Barcelona, 50
Boston, 235
Brisbane, 20
Calcutta, 107
Corral, 15
Genoa, 374
Havana, 111
Ibrail, 15
Maceio, 1
Montreal, 386 c.
New Fairwater, 38
Newfairweather, 36
Oporto, 30
Palermo, 55
Para, 6
Pernambuco, 181
Piræus, 72
Rio Grande, 9
St. Petersburg, 50
Salonica, 1 kg. 32
Stettin, 20
Sydney, 36
Valencia, 30
Vera Cruz, 100

**Chemicals** (*otherwise undescribed*)
Copenhagen, 8 c. £13
Naples, 1 t. 33
Ibrail, 12 2 q. 19
Genoa, 1 33
Philadelphia, 10 17
Palermo, 10 16

**Colours—**
Gijon, 2 cks. 1 cs.
La Libetaca, 8
C. C. Castle, 108 kgs.
Kobe, 10
Lisbon, 1
New York, 9

**Copperas—**
Alexandria, 72 t. 19 c. £182
Bahia, 5 10 12
Beyrout, 3 1 6

**Copper Sulphate—**
New Fairwater, 6 t. 2 c. 1 q. £90
Palermo, 13 4 195
Oporto, 4 15 1 72
Marseilles, 74 19 3 1,173
Naples, 15 11 219
Antwerp, 4 18 1 75
Bordeaux, 52 8 1 815
Ghent, 35 7 2 538
M. Video, 1 4 18
Oporto, 6 18 4 105

**Creosote—**
Copenhagen, 14 brls.

**Disinfectants—**
Hiogo, 10 c. 1 q. £17

**Flowers of Sulphur—**
Rio Grande, 8 c. 2 q. £5

**Glycerine—**
Rotterdam, 7 t. 11 c. £106

**Guano Phosphate—**
Hamburg, 33 t. 19 c. 3 q. £170

**Gypsum—**
N. York, 56 t. 8 c. £220

**Manganese—**
Philadelphia, 10 t. £80
Halifax, 27
Rouen, 15 cks.

**Magnesia—**
New Orleans, 15 cs.
Santos, 20

**Magnesium Chloride—**
Bombay, 3 t. 16 c. £10

**Mangnesium Sulphate—**
Ceara, 2 brls.
Bombay, 40 bgs.

**Manure—**
Barbadoes, 40 t. 11 c. £390

**Mineral White—**
Monterey, 12 cks.

**Ochre—**
Buenos Ayres, 100 brls.
Hamburg, 10 t.

**Paint—**
Barcelona, 4 cks.
Cienfuegos, 5
Coquimbo, 19
Demerara, 2 40 kgs.
Gaboon, 1 cs. 1
Genoa, 1 12 dms.
Grand Bassam, 8 tins.
Hamburg, 36
Havre, 9
Limon, 3
Malaga, 10 brls.
Montreal, 3
Naples, 2
N. Orleans, 4 cs.
New York, 211 8
Para, 1 cs. 18 10
Pernambuco, 5
Port Limon, 190 4
Rio de Janeiro, 6 1 cs. 70
St. John's, Nfld, 5 162 1 7 tcs.
Sydney, 8 20 brls.
Accra, 15 dms.
Antwerp, 5
Bahia, 87 kgs.
Calcutta, 30 800
Dunkirk, 11 pkgs.
Hong Kong, 140
Larnaca, 2
Lisbon, 4 brls.
Maranham, 1 cs. 17 30 21
Old Calabar, 5
Opobo, 15
Paysandu, 20 15
Punta Arenas, 2
Rangoon, 34 dms.
Rio Grande, 10
Rosario, 10
Shanghai, 10
Smyrna, 125
Valparaiso, 25 cs. 293 11 10 brls. 737
Winnebah, 2

**Painters' Colours—**
Accra, 1 cs
Antwerp, 1 dm. 4 tins. 2 pcls.
Baltimore, 135 cks.
Bilbao, 42
Boston, 10 5 kgs.
Buenos Ayres, 82 brls.
Calcutta, 1 ck. 2 cs.
Ceara, 2
Madras, 20
Monte Video, 2
New York, 250
Valparaiso, 100 15 cs. 600 kgs.
Alexandria, 50 brls.
Algoa Bay, 7
Fernando Po, 10

**Phosphorus—**
Shanghai, 7 cs. £70

**Pitch—**
Cabenda, 1 brl.
New York, 101 cks.
Sydney, 5 brls.

**Potash—**
M. Video, 7 c. £13

**Potash Salts—**
Valparaiso, 2 c. £9
Havre, 9 1 q. 40

**Potassium Bichromate—**
Rio de Janeiro, 5 t. £9
Syra, 9 c. 25

**Potassium Chlorate—**
New Fairwater, 10 c. £23
Barcelona, 10 25
Stettin, 5 t. 228
Boston, 5 236
Naples, 3 5 147
Antwerp, 3 15 183
Genoa, 1 50
Copenhagen, 1 45
N. York, 21 1,019
St. Petersburg, 5 10 284
Teneriffe, 1 16 75
Odessa, 2 99
Yokohama, 2 10 113
Mexico, 1 10 90
Batoum, 1 59

**Potassium Manure—**
St. Vincent, 5 t. 2 c. 2 q. £9

**Rosin—**
Cabenda, 2 brls.

**Salt—**
Adelaide, 125 t.
Batanga, 7
Belize, 56
Boston, 204
Cabenda, 2,000 bgs.
Calcutta, 4,849
Ceara, 1 cs.
Demerara, 1,150 brls.
Dunedin, 247½
Halifax, 10 c.
Livingston, 212
Loango, 1,490
Melbourne, 104
Newcastle, N.S.W., 170 t.
Rotterdam, 367 t.
Santos, 2¼
Sierra Leone, 25
Sydney, 1 1 c.
Talcahuano, 4¾
Trangesund Wyburg, 650 t.
Valparaiso, 9¼ t.
Winnebah, 27
Algoa Bay, 9
Anamabod, 19
Antwerp, 100
Brussels, 2
Ghent, 195
Iceland, 182
Monrovia, 8 trs.
Montreal, 1,365 2,775 sks.
New York, 25
Port Elizabeth, 5
,, Natal, 1 c.
Quebec, 592
Rangoon, 1,000
San Francisco, 192 6

**Salt Cake—**
Dunedin, 10 t. 11 c. £34
Baltimore, 151 1 355
Oporto, 3 7 9
Kokomo, 76 cks.

**Saltpetre—**
Barcelona, 1 t. 5 c. £25
Rio Grande, 10 12
Teneriffe, 15 16
Montreal, 5 1 q. 6

**Sheep Dip—**
Punta Arenas, 4 t. 18 c. 1 q. 19 cks. £347
Natal, 3 18 160

**Soap—**
Alexandria, 20 bxs.
Antwerp, 920 cs.
Bombay, 1,710 8
Cairo, 20
Cameroon, 20
C. C. Castle, 140 4
Coquimbo, 442½ t
Curacao, 166 15
Piræus, 20 bdls.
Port Natal, 400 25
Sherbro, 5 1
Algoa Bay, 50
Amsterdam, 120
Barbadoes, 300
Bilbao, 2 cks.
Buenos Ayres, 63
Capetown, 500
Colombo, 8
Copenhagen, 30
Demerara, 1,190
Drewin, 60
E. London, 3,200 3
Genoa, 50
Gijon, 130
Hiogo, 30
Kingston, Jam., 500
Kurrachee, 50
Macassar, 2,000
Manaos, 1,050
New York, 143
Opobo, 1,620
Para, 125
Port Antonio, 60
,, Elizabeth, 320
,, Said, 50
Rangoon, 1,000
St. Lucia, 210
Santos, 1
Shanghai, 250
Singapore, 120 25 30 dms
Smyrna, 30

**Soapstone—**
Bombay, 20 bgs.

**Soda—**
Leghorn, 60 dms. 40 brls.
Monte Video, 100
Naples, 36
New York, 126 cks. 393
Valparaiso, 1 cs.

**Soda Alkali—**
Dunedin, 40 brls.
Toronto, 35

**Soda Ash—**
Montreal, 10 cks.
Rio de Janeiro, 8 200 brls.
San Francisco, 66
Boston, 277 808 bgs.
Buenos Ayres, 134
Havana, 3
New York, 124 2,227
Para, 10
Pernambuco, 15
Philadelphia, 252 600
Porto Alegre, 2
Sydney, 161

**Soda Crystals—**
Palermo, 27 brls.
Port Natal, 40 kgs.
Smyrna, 50
Barcelona, 12
Callao, 20
Hong Kong, 50
Port Natal, 40
Rosario, 10
Santiago de Cuba, 20
Valparaiso, 100

**Sodium Biborate—**
Antwerp, 4 c.
Hamburg, 10 t. 8 q.

**Sodium Bicarbonate—**
Bilbao, 20 kgs.
Genoa, 26
Montreal, 250 25 cks.
Rotterdam, 20
Rouen, 40 20
Auckland, 20
Buenos Ayres, 50 74
Constantinople, 60
Gothenburg, 26
Hamburg, 30 20
Havre, 400
Ibrail, 44 cs.
Marseilles, 20 1
Newcastle, 20
Philadelphia, 486
Port Natal, 20
Santiago de Cuba, 40
Sydney, 50
Wellington, 30 bgs.

**Sodium Carbonate—**
Boston, 84 brls.
Para, 3 cks.

**Sodium Chlorate—**
Antwerp, 2 t.
St. Petersburg, 7
N. York, 12 10 c.
Hiogo, 50 kgs.

**Sodium Fluorate—**
Hamburg, 5 t.

**Sodium Hyposulphite—**
Calcutta, 1 t. 4 c.
Callao, 20 kgs.

**Sodium Nitrate—**
Leghorn, 6 t. 19 c.
Oporto, 2 1 1 q.
Almeria, 11 19 2
Venice, 12 13 3

**Sodium Silicate—**
Carthagena, 12 cks.
Cienfuegos, 4 brls.
Oporto, 6
Salonica, 16

**Strontia—**
Rotterdam, 49 t. 10 c.

**Sulphur—**
Philadelphia, 334 bgs.
Boston, 935
Montreal, 1,000
Boston, 668
St. Nazaire, 800
Kurrachee, 7 t. 9 c.

**Sulphuric Acid—**
Bombay, 6 c 1 q.
Rio Grande do Sul, 19 2

**Superphosphate—**
Grand Canary, 13 t.
Teneriffe, 3 18 c. 1 q.

**Tallow—**
Calcutta, 1 ck.

**Tar—**
Cabenda, 10 brls. 1 kg.
Copenhagen, 20
Gaboon, 6
Porto Alegre, 10
St. John's, Nfld., 10 cks.
Genoa, 1 cs. 1

**Tar Oil—**
Bahia, 5 dms.

**Tartaric Acid—**
Corunna, 5 c.
Montreal, 5

**Varnish—**
Boma, 12 brls.
Calcutta, 1 cs.
Demerara, 5 dms.
Gijon, 1
Melbourne, 4
Monte Video, 7
Valparaiso, 25
Buenos Ayres, 9
New Orleans, 2

## GLASGOW.

*Week ending July 7th*

**Acids—**
Phillippines, 4 t. 18 c.

**Alum—**
Quebec, 15 t. 12¼ c.

**Ammonia—**
Trinidad, 101 t. 2½ c.

**Ammonium Carbonate—**
Quebec, 1 t. 2 c. £27
**Aniline Dye—**
Calcutta, 2 c. £55
**Benzol—**
Rotterdam, 10 t. 17 c. £124
**Bichrome—**
Rouen, 5 t. 13½ c. £178
**Bleaching Powder—**
Hong Kong, 16 t. 14 c £121
Brisbane, 74 3¼ 645
**Cobalt Matte—**
Rotterdam, 10 t. £501
**Creosote Oil—**
Konigsberg, 55 t. £110
**Lead Acetate—**
Bombay, 2 t. 1¾ c. £34. 12s.
**Linseed Oil—**
Cape Colony, 5 t. 19¼ c. £127
**Magnesium Sulphate**
Bombay, 5 t. 7¾ c. £22. 18s.
Christiania, 15 51
Montreal, 8 9 34. 12s.
Melbourne, 5 20. 12s.
**Manure—**
Demerara, 59 t 4½ c. £456
**Naphtha—**
Rouen, 5 t. 5¼ c. £84
**Paint—**
Cape Colony, 1 t. 15½ c. £37
Rotterdam, 2 dms. £2. 12s.
New York, 4 11 52
Demerara, 2¼ 30
Calcutta,
Straits, 15 19½ £197. 10s.
Hong Kong, 15 329
Brisbane, 1 8¾ 26
**Painters' Colours—**
Straits, 6¼ t. £52
Philippines, 3 19 c. 66
Calcutta, 8 1¾ 244
Demerara, 1¼ 24
Rouen, 2 8½ £32. 10s.
Melbourne, 1 15½ 37
**Paraffin Wax—**
Bombay, 1 t. 4 c. £31
Japan, 23,400 lbs. 299
Melbourne, 10 7 275
**Phosphate—**
Straits, 2 t. 5 c. £35
**Pitch—**
Bombay, £32
Quebec, 62 t. 4¼ c. 165
**Potash Salts—**
Cape Colony, 50 t. £5,000
**Potassium Bichromate—**
Gothenburg, 5 t. 5¾ c. £164
Rouen, 10 11¾ 380
New York, 20 16¼ 875
**Potassium Prussiate—**
Quebec, 10 c. £35
" 110
Rouen, 13¾ 37
**Resin Oil—**
Philadelphia, 3 t. 4¾ c. £33. 16s.
**Salt—**
Brisbane, 200 t. £200
**Soap—**
Calcutta, 106 dms.
Lisbon, 1 t. 4¼ c. £23
Cape Colony, 4 14¾ 93
Trinidad, 6 12 115
**Soda—**
New York, 1 t. £46
**Soda Ash—**
Brisbane, 22 t. 10¾ c. £136
**Sodium Bichromate—**
Rotterdam, 6 cks. £56
Rouen, 78 t. 16½ c. 1,790
Montreal, 1 2¾ 43
New York, 7 18½ 278
**Sulphur—**
Demerara, 3 t. 18¾ c. £26
**Sulphuric Acid—**
Straits, 5 t. £25
**Tallow—**
Cape Colony, 1 t. 15 c. £53
Rotterdam, 12 19 395
**Tannic Acid—**
Montreal, 3 c. £20
**Tar—**
Konigsberg, 137 t. £270
Philadelphia, 75 162
Straits, 10 ½ c. £24. 7s.

**Tar Oil—**
Danzig, 1,200 brls.
**Varnish—**
Calcutta, £20
Hong Kong, 200 gls. 99
**White Lead—**
Cape Colony, 4 t. 2¾ c. £77
Natal, 3 16 75
Montreal, 12 16¼ 222
Melbourne, 6¾ 148
Brisbane, 2 £42. 15s.
**White Lead and Paint—**
Cape Colony, 1 t. 11½ c. £34

## HULL.

*Week ending July 2nd.*

**Alkali—**
Bari, 3 cks.
Bergen, 1
**Aluminium—**
St. Petersburg, 1 ck.
**Aniline—**
St. Petersburg, 2 cs.
**Antimony—**
St. Petersburg, 40 cs.
**Benzol—**
Ghent, 15 cks.
**Bleaching Powder—**
Bombay, 42 cks.
Danzig, 3
Rotterdam, 3
Trieste, 16
**Borax—**
Wyburg, 1 ck.
**Caustic Soda—**
Bari, 48 dms.
Danzig, 70
Fiume, 35
Helsingfors, 20 cks.
Libau, 123
St. Petersburg, 24
Trieste, 70
Wyburg, 10
**Chemicals** *(otherwise undescribed)*
Amsterdam, 1 ck. 16 pks.
Antwerp 36 cs. 20
Bordeaux, 20
Bombay, 34 cks.
Bari, 21 20
Bergen, 10
Copenhagen, 16 11
Christiania, 2
Dunkirk, 1
Danzig, 140
Gothenburg, 20 16 cs 130 pkgs.
Hamburg, 5 104 102 pks.
Jersey, 10
Konigsberg, 3
Kurrachee, 160
Libau, 95 pkgs.
N. York, 100 kgs. 100
Rotterdam, 60 cs. 14 cks. 806 pkgs. 100 kgs.
Riga, 6
Stettin, 6
St. Petersburg, 1 115
Trieste, 20
Venice, 28 pks.
Wyburg, 2
**Cottonseed Oil—**
Amsterdam, 201 c
Antwerp, 88
Flushing, 224
Gothenburg, 200
Hamburg, 337
Rotterdam, 1,301
Trieste, 1,736
**Creosote—**
Christiania, 20 cks.
Trieste, 10
**Dyestuffs** *(otherwise undescribed)*
Danzig, 1 cs.
Rotterdam, 2 kgs. 32 cks.
Stettin, 8
**Linseed Oil—**
Amsterdam, 204 c.
Antwerp, 88
Bombay, 54
Bremen, 60
Bergen, 17
Copenhagen, 17
Christiania, 619
Drontheim, 24
Hamburg, 120
Kurrachee, 160
Rotterdam, 105
Trieste, 145

**Manure—**
Hamburg, 916 bgs.
Rotterdam, 1,000
**Mineral White—**
Bombay, 194 bgs.
Messina, 20 cks.
**Naphthaline—**
Riga, 51 bgs.
**Painters' Colours—**
Amsterdam, 8 cks. 1 pkg.
Antwerp, 20 90 pks. 13 cs.
Bombay, 11 48
Bari, 4
Bremen, 1
Bergen, 1
Copenhagen, 37 30 1
Christiania, 1 67 dms. 1
Christiansund, 92 kgs.
Drontheim, 16 1
Dunkirk, 1
Danzig, 40
Fiume, 2
Flushing, 1
Ghent, 10 2
Gothenburg, 17 62 dms. 3
Hamburg, 25 20
Jersey, 3 2 2
Konigsberg, 10
Harlingen, 2
Kurrachee, 168
New York, 267
Palermo, 6
Rotterdam, 4 8
Rouen, 24 1
Riga, 33
Stettin, 20
St. Petersburg, 144
Trieste, 2
**Paraffin Wax—**
St. Petersburg, 110 bales.
**Phosphate—**
Copenhagen, 160 t.
**Pitch—**
Antwerp, 100 t.
Flushing, 60
**Rosin—**
Christiania, 25 cks.
**Sheep Dip—**
New York, 461 dms. 70 cs
**Tallow—**
Bombay, 13 cks.
Gothenburg, 5
Hamburg, 1
Harlingen, 7
**Tar—**
Amsterdam, 6 cks.
Antwerp, 2
Danzig, 6
Hamburg, 3
Rotterdam, 25
**Varnish—**
Antwerp, 4 cks. 5 cs.
Drontheim, 3
Harlingen, 1
Rotterdam, 7
Rouen, 1

## TYNE.

*Week ending July 2nd.*

**Alkali—**
Amsterdam, 3 t. 10 c.
Rotterdam, 1 2
St. Petersburg, 11 17
Adelaide, 10 1
**Ammonium Carbonate—**
Aarhus, 7 c.
**Ammonium Sulphate—**
Aalborg, 5 t.
**Antimony—**
Hamburg, 2 t. 10 c.
New York, 22 10
Montreal, 2
**Arsenic—**
Genoa, 1 t. 1 c.
**Barium Binoxide—**
New York, 2 t.
**Barytes—**
Hamburg, 48 t. 12 c.
**Barytes Carbonate—**
Hamburg, 105 t.
St. Petersburg, 10
**Bleaching Powder—**
Antwerp, 15 t. 13 c.
Amsterdam, 15 14
Christiania, 30 10
Rotterdam, 14 8
Lisbon, 5 1

Norrkoping, 55 7
St. Petersburg, 88
Montreal, 12 4
Copenhagen, 10 7
Bergen, 4 18
Drontheim, 9 17
Bilbao, 11 4
Genoa, 8 8
**Caustic Soda—**
Hamburg, 1 t. 3 c.
Antwerp, 11 19
New York, 145 1
Copenhagen, 6 10
St. Petersburg, 29
Montreal, 58
Genoa, 26 13
Adelaide, 10 3
Bilbao, 69
**Colours—**
Copenhagen, 1 t. 1 c.
**Copperas—**
Oporto, 2 t. 11 c.
Bergen, 3 1
Sundswall, 3 17
**Litharge—**
Oporto, 1 t. 14 c.
Hamburg, 5 7
New York, 3 10
Montreal, 1 3
**Magnesia—**
Hamburg, 1 c.
Antwerp, 1
Rotterdam, 2
Genoa, 1 t. 5
**Ochre—**
Christiania, 2 t. 5 c.
**Paint—**
Antwerp, 14 c.
New York, 4 t. 18
**Painters' Colours—**
Ergasteria, 1 t. 5 c.
**Phosphorus—**
Genoa, 9 c.
**Soda—**
Rotterdam, 23 t 14 c.
Aarhus, 3 4
Copenhagen, 3 4
**Soda Ash—**
Hamburg, 7 t. 14 c.
Lisbon, 14 9
**Sodium Hyposulphite—**
Hamburg, 6 t. 13 c.
Amsterdam, 1 10
New York, 25 2
**Sodium Sulphate—**
Lisbon, 20 t. 5 c.
**Sulphur—**
Antwerp, 22 t. 10 c.
Christiania, 50
**Superphosphate—**
Pernan, 144 t. 7 c.
**Varnish—**
Kiel, 1 t.
**White Lead—**
Oporto, 2 t. 16 c.
Drontheim, 1 7
Bergen, 1 9
Montreal, 60 10

## GOOLE.

*Week ending June 16th.*

**Alkali—**
Dunkirk, 30 dms.
Hamburg, 2 ck.
**Chemicals** *(otherwise undescribed)*
Ghent, 10 cks.
**Coal Products** *(otherwise undes.)*
Ghent, 18 dms.
Rotterdam, 123 cks.
**Dyestuffs** *(otherwise undescribed)*
Antwerp, 2 ck.
Boulogne, 1 1 cs.
Ghent, 2 12 tins.
Hamburg, 15
**Pitch—**
Antwerp, 282 t.
Boulogne, 3¼ c.

## GRIMSBY.

*Week ending June 20th.*

**Chemicals** *(otherwise undescribed)*
Hamburg, 3 cs. 20 cks. 4 pkgs.
**Coal Products** *(otherwise undesc'd.)*
Dieppe, 60 cks.

# PRICES CURRENT.

WEDNESDAY, July 13th, 1892.

Prepared by Higginbottom and Co., 116, Portland Street, Manchester.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids:—** | | | | |
| Acetic, 25 % and 40 % | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | 50/- | | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 %) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ( ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 0 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| ,, ,, (medium qualities) | ,, | 4 | 15 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, ·880=28° | per lb. | 0 | 0 | 3 |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 9 | 17 | 6 |
| ,, (grey) Hull | ,, | 9 | 16 | 3 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 2 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes:—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8¾ |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 10½ |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 8½ |
| ,, 50/90 ,, | ,, | 0 | 1 | 3½ |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 4⅞ |
| ,, (crude 60°) | per gallon | 0 | 1 | 1½ |
| Creosote (ordinary) | ,, | 0 | 0 | 1 |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 0 | 11 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 44 | 10 | 0 |
| ,, Sulphate | ,, | 15 | 5 | 0 |
| ,, Oxide (copper scales) | ,, | 45 | 0 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 45 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 17 | 6 |
| ,, Litharge Flake (ex ship) | ,, | 14 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, ( brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 5 | 17 | 6 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 4 | 3 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 4 | 0 |
| **Oils:—** | | | | |
| Cotton-seed | per ton | 19 | 10 | 0 |
| Linseed | ,, | 20 | 5 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4⅝ |
| ,, American | ,, | 0 | 0 | 5⅝ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4⅝ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 6¼ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 10 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 10 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 10 | 0 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 7 | 17 | 6 |
| Silver (metal) | per oz. | 0 | 3 | 3⅛ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 7 | 6 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 6 | 5 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 16 | 5 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8 |
| ,, Borate (Borax) | nett, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | nett pr. ton | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) ,, ,, | ,, | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) ,, ,, | ,, | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) ,, ,, | ,, | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 15 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 4½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¾ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 16 | 6 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7½ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7¾ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 5 | 0 |
| ,, Brimstone: Best Quality (nominal) | ,, | 5 | 0 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 27 | 0 | 0 |
| Tin (English Ingots) | ,, | 98 | 0 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 21 | 12 | 6 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# CHEMICAL TRADE JOURNAL

AND

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## THE INSTITUTE OF CHEMISTRY EXAMINATION.

ON Monday of last week and the four following days the examination in practical chemistry for the Associateship of the Institute of Chemistry was held in the Chemical Laboratory of Finsbury Technical College, London.

After the turbulence which has been evinced at the proceedings of the Institute during the past year, it is only natural that those interested in the true welfare of the Institute should await with more than ordinary interest the first signs of improvement which the occurrence of this examination enabled the Council to display; and without a doubt, as far as regards many of the grievances brought up last year, there was evidence of rigorous reformation. This will perhaps be best shown by the following excerpts from the general instructions issued to the candidates:—

> The examination will commence on Monday, July 11th, and on that day the Laboratory will be open from 9 a.m. to 4 p.m. On the four following days the Laboratory will be open from 10 a.m. to 4 p.m.
>
> A paper will be set each day. Note books will be provided for the record of each day's work.
>
> Note books must be delivered to the examiner at 4 p.m. on each day, and also whenever the candidate leaves the Laboratory.
>
> Candidates are not allowed to confer with each other during the examination.

The provision of necessary apparatus which was also announced was truly a very different provision to that which has hitherto existed. Each student's bench was adequately furnished with all the apparatus that could be reasonably expected, and a room was set apart where almost any additional apparatus could be obtained on application. Moreover, the candidates were spared actual bottle-washing operations, the apparatus used during the day being either removed or cleaned for them. With reference to the last regulation above named, not the slightest ground for complaint could exist with the most scrupulous, for the supervision was perfect, systematically regular, and yet sufficiently intermittent to be supervision in its strictest sense.

With regard to the time allotted for the performance of each day's work, it was somewhat misleading to the candidates to state that the hours were from ten to four, since they were really ten to one and from two till four, with a compulsory interval of one hour for lunch. This arrangement of the time was likely to prove a great source of inconvenience, since the regulation of the work so as to allow of its being left for the hour, and the restarting at the expiration of that period, meant losing considerably more than an hour, and evidently by many such was found to be the case. Moreover, it being highly improbable that even the majority of the students would have arrived at the same stage, it was bound to tell unequally, placing some at a disadvantage. Whilst mentioning the disadvantages which some candidates had to cope with, it is as well to instance

here that in the matter of convenience for the use of sinks, water, fume closets, and even working space there were serious discrepancies, and many candidates had to cope with difficulties for which there were no compensating circumstances. This, however, was the misfortune rather than the fault of those to whom the organisation of details was allotted, the *raison d'être* of these disadvantages lying in the arrangement of the laboratory and not with the executive, for the arrangement of the places had been so obviously a mere matter of chance as to preclude any presentiment of individual selection.

Before going further it will perhaps be best to give the papers as set for each day, which are appended herewith:—

*First Day.* 1. Standardise the thermometer given to you, and calibrate it between 0° and 100°. 2. Prepare a specimen of crystallised arsenic acid. 3. Ascertain the constituents of the solution and of the solid substance supplied to you.

*Second Day.* Identify the given organic compound and ascertain (1) its solubility in water at 20°, (2) its melting point and boiling point, (3) its relative density at the melting point and at 100°, (4) the percentage of nitrogen it contains.

*Third Day.* Ascertain what elements (metallic and non-metallic) are present in the given powdered mineral. Estimate gravimetrically or volumetrically the amount of the chief constituents.

*Fourth Day.* From the propyl alcohol given prepare sufficient propionic aldehyde to enable you to produce about five grams. of the ammonia compound in a pure well crystallised state.

*Fifth Day.* 1. Make an analysis of the gas contained in the iron cylinder. 2. Estimate the amount of carbon dioxide in the air of the laboratory.

The actual examination on the first day began at 9.30, a liberal quantity of arsenious oxide (about 50 grams.) was supplied to each student. On the second day the identification of the organic substance provided was the subject of much discussion, on account of the doubts entertained as to the purity of the specimen, and judging from the discussion which took place amongst some of the college staff at the close of the fifth day, there seems to have been genuine ground for the suspicions entertained by the candidates. Shortly after half-past three on the second day it was announced that the hours would be extended to five o'clock. The information would have been much more acceptable if given at two o'clock; as it was the extension of time came after all hopes of completing the day's work had been abandoned by many of the candidates, and yet left insufficient time for making a fresh start on anything else.

On Wednesday, the third day, the hours specified were adhered to, though the note books for the record of the day's work were not forthcoming at the time appointed, but were supplied later on in the morning.

For the preparation of the propionic aldehyde, forty cubic centimetres of the propyl alcohol were given to each candidate, and no further supply was available in the case of accident, for the conclusive reason that no more was obtainable in London at the time. For the performance of the work of the fifth day, gas apparatus was provided for one-half of the candidates, while the other half proceeded with question two. As those who had to use the gas apparatus first were compelled to hand over their piece of apparatus at 1 p.m., it is an open question on which side the advantage of the arrangement lay, though to many minds there was an advantage.

The promptness on the whole with which the laboratory was opened left nothing to be said either way, though some latitude was noticeable in the giving up of the note books at 4 p.m., many students on more than one occasion being occupied in writing out their notes after notice had been given for all note books to be handed to the examiner, an injunction which in many cases had been promptly complied with.

Taken all round the whole examination was typical of a new *régime*, and showed evidence of the good which recent agitation has effected.

There are one or two points, however, which are likely to provoke discussion. As a test of the efficiency of a chemist to do practical work such as is usually met with, say, in the laboratory of a public analyst, an examination devoting two days to organic chemistry, pure and simple, practically a day and a half to the preparation of pure compounds, with a considerable time devoted to physical chemistry, and only one day to inorganic qualitative and quantitative analysis is not an altogether satisfactory arrangement. However, "Rome was not built in a day," and the changes which were so urgently needed in the performance of the Institute's functions cannot all be made at once. It is encouraging to chronicle the improvements which have already been made, and the completion of the same must be accomplished by aid of the combined forces of patience, perseverance, and time.

## SOCIETY OF CHEMICAL INDUSTRY.

### ANNUAL GENERAL MEETING.

THE annual general meeting of the Society of Chemical Industry was fixed to take place in London this year, the two previous gatherings have been held at Nottingham and Dublin respectively. A programme has been arranged which, if not so greatly superior to those of the former meetings as was warranted by the unique status of the capital city of the world, was at least an honest effort to return to some of those members of the Society whose unstinted generosity and hospitality had rendered the visits of their London brethren worthy of specially pleasant recollection. The serious business of the meeting was despatched on the first day, Wednesday July 20th, and apart from the dry but necessary details of the progress and position of the Society, the most important part of that function was undoubtedly the Presidential Address.

### PROFESSOR EMERSON REYNOLDS ON FUEL.

The retiring president, after alluding briefly to the growth of the Society, the efficiency of its Journal, and the losses it had sustained by the death of some of its most prominent and valued members, plunged *in medias res*, rejecting the plan adopted by sundry past presidents of recounting the conclusions to which their life work had led them, in favour of the discussion of a problem, the importance of which it is almost impossible to overrate, and whose adequate solution, in the case of the country whence he comes, would do more to bring about its prosperity than political panaceas innumerable.

### FUEL FOR IRISH INDUSTRIES.

The scarcity of coal on the other side of St. George's Channel has at all times proved an obstacle to the development of industries in which fuel plays an important part, unless the margin of profit is generous, or at least considerable. It is true that there are large stores of energy in the form of peat, but their utilisation has hitherto not attained realisation. The pinch of necessity, which is making itself felt by all users of fuel on any considerable scale, has been leading both to endeavour to secure economy in consumption, and to the attempt to substitute other sources of heat for that which is now most largely employed. When it is considered that competent authorities put the limit of the endurance of the coal supply of Great Britain and Ireland at a period ranging from 170 to 228 years, the need for both precautions is sufficiently obvious. Particular stress was very rightly laid by the President on the sins of the domestic consumer, for whom we have ourselves preached sermons times without number, and the conclusion at which he arrived was that there is little to be hoped until gaseous fuel is the rule and not the exception. The gasification of coal in an ordinary retort is at best a clumsy and very partial method of producing gaseous fuel, and must eventually give way to the use of the producer, whatever the ultimate form it may take. There will be no inducement to produce an illuminating gas when the original function of the product of the distillation of coal is undertaken wholly

by electricity; and when that happy time arrives, the whole of the gas that can be got from coal in the producer will be distributed as an agent for heating and the production of mechanical power, to the great advantage of the consumer and the enhancement of the dividends of the holder of gas companys' shares. These facts apply as much to Great Britain as to Ireland, but the possibility of utilising the stores of peat already referred to, appeals more particularly to the smaller island, and it remains to be seen how far the principles already laid down are applicable to this special case. The consumption of peat in the form in which it is dug from the bog, in any ordinary furnace adapted for use with coal, is impracticable, on account of the bulkiness of the former material, and its low calorific value. Attempts to compress it and thus minimise the first mentioned objection, have met with little success, as the cost of handling and transport is even then too great to enable it to compete with coal under equivalent conditions. With this problem before him, it occurred to Professor Reynolds some years ago that it might be feasible to treat peat in the same way as coal, by converting it into gas in a producer, and with this end in view an experiment was made by the Great Western and Southern Railway of Ireland, in which a Siemens furnace, burning rough peat containing about forty per cent. of water, was erected for heating scrap iron at the engine works of the railway at Inchicore. The average consumption was 5·09 tons for each ton of scrap, while the amount of coal that had formerly been used in an ordinary welding furnace was 4·96 tons, a quantity which would have been reduced to about three tons if a regenerative furnace had been used. Even on this assumption the cost of the peat burnt, which was then exactly half that of coal per ton, would not have exceeded five-sixths of that of the latter, and under the conditions that actually obtained a saving of as much as £4. 7s. 9d. per ton of finished forgings was effected. The method, though admittedly only available where peat is readily obtainable and coal is comparatively dear, has sufficient possibilities to make it a matter of some surprise that no further development has come about in aid of the industrial finances of the "distressful country."

PETROLEUM: LIQUID AND GASEOUS.

No dissertation on fuel is complete nowadays without the devotion of a considerable section to the youngest and most flourishing of our sources of supply, which has provided us with products ranging from a local anæsthetic for surgical use to a surrogate for the lard dear to the heart of the old-fashioned pharmacist as a basis for his incipiently rancid ointments. From the fuel as opposed to the illuminating point of view, the chief beauty of petroleum is its condition of liquidity, making it a sort of half-way house between solid and gaseous fuel, combining, as it does, more than the compactness of the former with nearly the ease of transport of the latter. These properties make it specially valuable where it is intended to turn it into gas on a comparatively small scale, the richness of the product aiding the ease with which a fair quantity, whether reckoned in units of heat or of illumination, can be handled. Hitherto attention has chiefly been devoted to the exploitation of gas made from petroleum, either for lighting purposes by itself, or more largely for the enrichment of coal gas; but there is no reason why under certain conditions it should not also be used as a fuel. Seeing that one ton of coal yields on an average 10,000 cubic feet of gas of 16 candle power, and an equal weight of oil about 24,000 cubic feet of 60 candle power, the cost of the latter reduced to 16 candle power comes out at 1s. 7d. per thousand cubic feet. It cannot be correctly assumed that the calorific power of a gas is proportional to its luminosity, but even with a deduction of 25% for this discrepancy, the oil gas is found to be cheaper than coal gas supplied at the normal rate of 3s. per 1,000 cubic feet.

The address, though containing nothing that is not well-known to those who like ourselves have made a special study of what is *the* industrial problem of to-day, may take rank with those whose usefulness consists in the lucid exposition of truths, too often neglected or wilfully ignored, in a manner and from a personality capable of arresting the attention of the careless and enlightening the understanding of the obtuse, and as such forms a fitting landmark in the career of one of the few professorial chemists who are thoroughly in touch with the developments of the technology appertaining to the science we all pursue.

## THE VALUE OF GUANO AS A MANURE.

DURING recent years the attention of all large consumers has been confined chiefly to chemical manures, in preference to natural deposits, such as guano, which only a few years since was considered a manure of the highest order. The universal argument which is put forward in explanation of this fact is that the guano deposits now being worked are deficient in nitrogen, Peruvian guano being generally referred to as an instance. As a matter of fact, shortly after the introduction of the genuine article so many artificial guanos sprang into existence consisting of inferior, and often worthless mixtures, which were palmed off as natural guano, that the *bonâ fide* article soon began to suffer for the shortcomings of the spurious ones, and in course of time all guanos were looked upon with suspicion, and pronounced unreliable without any descrimination whatever.

Thus nowadays any attempt to sell a genuine guano is rendered futile. Although the article may be rich in the three essential ingredients, viz., nitrogen, potash, and phosphoric acid, any statement that is made in the endeavour to convince buyers that the particular guano offered is at all events a good one is invariably met with the sweeping assertion, "There are no good guanos"—a statement which has been repeated so often that it is now generally accepted as a truth and allowed to pass unchallenged.

Whatever ground there may be for this assertion, and doubtless the number of worthless guanos which have been foisted upon the public is large, there is not the slightest doubt that an excellent manure has been found in the guano deposits of the island of Corcovado, which has been exploited now for some time by the Anglo-Continental Guano Company.

Dr. Crispo, who is the director of the Belgian State agricultural laboratory at Anvers, has analysed a sample of this guano, taken from a cargo of 1,479 tons, which he found to contain large quantities of the aforementioned vital constituents, as is shown by the following analysis:—

| | | | |
|---|---|---|---|
| Nitrogen | as Nitrate ... ... | traces | |
| | Amoniacal ... ... | 3·24 | |
| | Organic ... ... | 7·36 | |
| | | | 10·60 |
| Phosphoric Acid Soluble in | Water ... ... ... | 2·83 | |
| | Ammonium Citrate ... | 3·38 | |
| | Mineral Acids... ... | 8·22 | |
| | | | 14·43 |
| Potash Soluble in | Water ... ... ... | 3·57 | |
| | Mineral Acids... ... | 0·87 | |
| | | | 4·44 |

In order to ascertain how much of the organic nitrogen would be assimilated in a given time, equal quantities of the guano and dried blood were taken and given the same length of time. The percentage assimilations were for the dried blood 9·53 per cent. and the guano 18·61 per cent.

In reporting upon the guano, Dr. Crispo, who is a well-known authority upon such matters, says that the form in which the fertilising elements occur in the guano render it a valuable and efficient manure for agricultural purposes since they are in a state which conduces to their rapid assimilation by the soil.

## THE QUALITY OF LONDON WATER.

THE London water supply has for long been a matter for discussion, and the recent Royal Commission has once more given prominence to the matter. The quality of the supply is more over just as important as the quantity. The remarks made by Major Flower when the scheme of Mr. Harrison was being discussed at the Institute of Civil Engineers were very pertinent, but as a correspondent, writing to the *Times*, says there was no need for their apologetic tenure, since neither Major Flower nor anybody else need be afraid that the public mind will ever regard the possibility that sewage may enter drinking water as a trifling matter. The danger, indeed, is present and increasing. No doubt the Lea, though tolerably dirty still, is purity itself compared to what it was some years ago, when it was very little better than a common sewer. Yet if we follow the last part of its slow course from the point at which it leaves Hatfield Park to Ware, it must be confessed that, though it has been to a great extent freed from being a direct recipient of house drains and so forth, it runs a very considerable chance of being contaminated, especially in times of heavy rain, by manure from the highly-cultivated land on either side. Of the manure used on those farms on either side a great quantity, consisting not merely of stable refuse, but also of the odoriferous rubbish of a great town, is brought down from London by rail. Chemical manures, too, must beyond question contribute their quota to the water, and they are likely to contribute more in the future than in the past. A short distance above Hertford the Lea is joined by the Maran or Mimram, which, after leaving Panshanger, passes between fertile meadows and through a long line of allotment gardens. Then the Lea flows on through Hertford, which, with the best intentions in the world, can hardly improve the quality of the water. So also the Thames, from its source in the Cotswolds down to the last point at which its water is drawn away in order to supply London, passes through cultivated ground, sometimes pasture, and meadow, which must be top-dressed in season, and sometimes arable; and it is evident that a great portion, if not all, of the agricultural drainage must find its way into the river. It may be answered that this has been going on from time immemorial,

and that the undoubted increase of population, which is worse than agriculture, up the river is more than counterbalanced by the steps taken to secure the river from pollution by sewage.

It may be said that, in spite of the inevitable pollution which reaches the river, the water, when it is delivered to us in London, is, as a matter of fact, wonderfully good and pure for drinking purposes, even though it is inconveniently hard. Still, after giving all due weight to these considerations and taking all reasonable comfort from them, it is only prudent to remember that some agricultural manure must always escape into the rivers and that such manure tends to become more and more poisonous every year. Formerly the rains washed nothing worse than a solution of farmyard refuse into the rivers, now they bring with them the heterogeneous rubbish from London dustheaps and all manner of chemical compounds. Moreover, it is worthy of notice that the Duke of Richmond's Commission, upon which fell the duty of considering the advantages and disadvantages of various areas for collecting water which were suggested, invariably paid the greatest possible attention to the question whether the area of collection included much or little of cultivated land. The Commissioners, it may be presumed, did not do this without thought; they did it, in truth, because they knew that London water must be, if possible, above suspicion, and that the day would come when the Londoner would be not less horrified at the idea that the quality of his water might be doubtful than he is when he looks back to the time, not very far removed in years, when his predecessors took all their supplies from the filthy tidal waters of the Thames.

Undoubtedly, it is important that the Metropolis should give the future provision of their water supply due and early consideration for the provincial towns, such as Manchester and Birmingham have their schemes for utilizing the large water supplies of Wales, while Liverpool has gone farther, having rendered their scheme for bringing water from Vyrnwy *un fait accompli.*

## ARE SPRAYED FRUITS POISONOUS?

WE have already in these columns done our little towards showing the public that the spraying of fruits and other eatables of the vegetable kingdom is not prejudicial to the safety of the public health, and the following testimony further supports our views:

In September, 1891, the New York City Board of Health seized and destroyed large quantities of grapes, on the ground that they had been sprayed with copper compounds and were poisonous. This action caused a serious loss to many grape growers. Mr. D. G. Fairchild, representing the United States Department of Agriculture, visited the Hudson River regions, where the grapes which had been seized were grown. He took pains to secure the worst sprayed bunches of grapes obtainable from those vineyards from which the condemned grapes came. These samples were given to the Chemist of the New York Agricultural Experimental Station for analysis.

In some instances, the copper compounds could be seen upon the berries, but it could be seen to be more plentiful upon the stems. In three samples, the berries were separated from the stems and the amount of copper determined upon each. In one instance, the berries and stems were not separated.

The samples from Marlborough were taken from two different vineyards. The samples 3 and 3a were from the same vineyard; in sample 3a, the copper was estimated upon the berries and stem together, and not separately. In the table below, the copper is given as metallic copper, the number of grains found for one pound of berries and stems.

| Locality where samples of grapes were obtained. | From one pound of berries and stems. | | |
|---|---|---|---|
| | Grains, estimated as metallic copper, on berries. | Grains, estimated as metallic copper, on stems. | Grains, estimated as metallic copper, on berries and stems. |
| (1) Milton, N.Y..... | $\frac{1}{120}$ | — | $\frac{1}{50}$ |
| (1) Milton, N.Y..... | — | $\frac{1}{90}$ | |
| (2) Marlborough, N.Y. | $\frac{1}{120}$ | — | $\frac{1}{40}$ |
| (2) Marlborough, N.Y. | — | $\frac{1}{80}$ | |
| (3) Marlborough, N.Y. | $\frac{1}{120}$ | — | $\frac{1}{12}$ |
| (3) Marlborough, N.Y. | — | $\frac{1}{14}$ | |
| (3-a) Marlborough, N.Y. | — | — | $\frac{1}{16}$ |
| Average for all samples. | $\frac{1}{120}$ | $\frac{1}{80}$ | $\frac{1}{20}$ |

The results embodied in the table above, we may summarize as follows:—

1. The amount of copper, estimated as metallic copper, found on the *berries*, was very constant in the different samples, averaging 1-120th of a grain for each pound of fruit (berries and stems).

2. The amount of copper, estimated as metallic copper found on the *stems*, varied from 1-90th to 1-14th of a grain for each pound of fruit, berries and stems, and averaged 1-30th of a grain.

3. If the copper were on the berries in the form of sulphate of copper, each pound of berries would contain about 1-30th of a grain of copper sulphate. When copper sulphate is prescribed by physicians as a tonic or stringent, the dose is from one-fourth to two grains. Hence, if a person were to eat and swallow the grape skins as well as the pulp of the berrie, it would be necessary to eat from 7½ to 60 pounds of grapes, in order to get a tonic dose of copper sulphate. Or, if one were to eat berries and stems, it would be necessary to eat from 1¼ to 10 lbs. to get a tonic dose of copper sulphate.

To get an amount of copper that would be regarded as serious if taken at one dose, one would need to eat not less than 3,000 pounds of grapes, skins included, or not less than 500 pounds, including berries and stems; and it is safe to say that if an attempt were made to get a dangerous dose of copper into the body in this way in a short time, a person would very soon be in a dangerous condition from the grapes alone, before running any risk from the copper. To state the matter in another way, if one were to eat each day one pound of these worst sprayed grapes, including the skins, and if all the copper taken in this way were to accumlate in the body, it would require over eight years to accumulate an amount of copper that would, if taken at one dose, be considered dangerous, yet not necessarily fatal.

4. As a matter of fact, copper, when found upon sprayed grapes in New York State, exists not in the form of a sulphate, but in the form of a carbonate or hydroxide, both of which forms are not readily soluble and which would, therefore, be even less dangerous than if present in the form of sulphate of copper. Most of the copper found was on the stems, which people do not eat; and the rest of the copper was on the outside of the skin of the berries, which most people do not eat.

5. The results obtained from estimating by chemical analysis the amount of copper on grapes, which were selected as being the worst sprayed that could be found, therefore, seem to justify the assertion that it is simply an absolute impossibility for a person to get enough copper from eating grapes to exert upon the health any injurious effect whatever.

From the foregoing it is evident that people may die from the effects of eating sprayed fruits if they eat enough, but not even then from the poison they have taken into their systems, but from the results of their own excessive indulgence.

## THE ADULTERATION OF MANURES.

THE Bill which was before the last Parliament for the Prevention of the Adulteration of Manures and Feeding Stuffs having died the death, it is encouraging to find that the Royal Agricultural Society has prepared a memorandum on the subject in respect to the sale of feeding stuffs and manures, and this has been sent on to the departmental committee of the Board of Agriculture. The following are the recommendations of the chemical committee:—

1. It would be an advantage alike to agriculturists, the trade, and to agricultural chemists if a definite agreement were arrived at as to what meaning is to be conveyed when certain names are applied to feeding stuffs and manures, the nature and composition of which it is quite possible to define. Thus, it would be well that certain articles in common use on the farm, such as linseed-cake, bone-meal, nitrate of soda, etc., should be defined.

2. When a vendor sells any such articles he should be compelled to give the purchaser an invoice describing the articles by a definite name, the meaning of which is clearly understood by the trade and by agricultural chemists in agreement.

3. As, however, there are other materials which it is not possible to define clearly—*e.g.*, substances such as barley manure, turnip manure, mixed feeding cake, calf meal, etc.—these should be sold according to analysis, and the analysis, or rather the guaranteed portion of it, should be stated on the invoice. The chemical committee does not regard it as necessary that the manufacturer or vendor should be compelled to state of what such materials are composed, provided the analysis be given.

4. It should be a necessary stipulation in the case of sale of all feeding stuffs for cattle that they be understood to be "fit for feeding purposes."

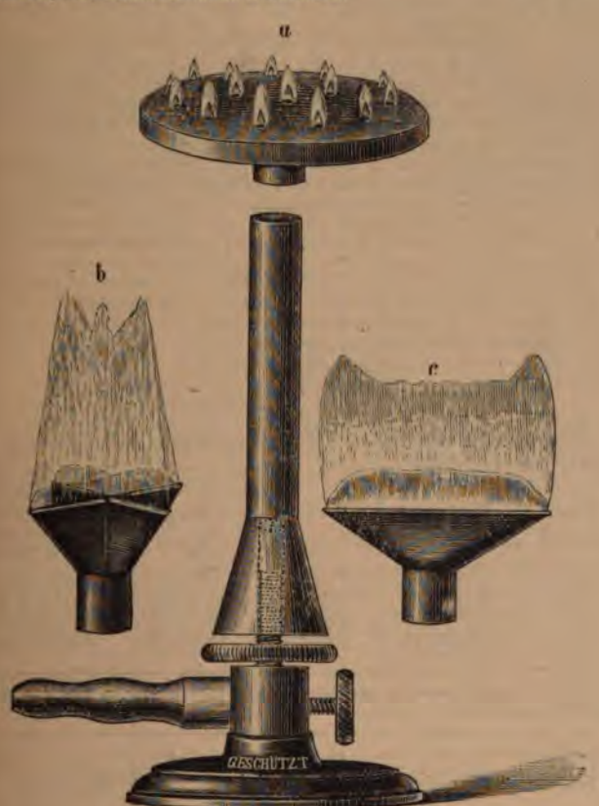
5. It would be only fair to the vendor of any material that, when a purchaser intends to take a sample of it for the purpose of having it analysed, notice should be given to the vendor, so that he might attend either personally or through a representative, and see the sample drawn, or take it to others conjointly with the purchaser.

These recommendations have great value from the fact that ever since 1865 the society has, on an average, made more than 1,000 analyses of these articles each year. They are very moderate in tone, and are very similar to those which the respectable portion of the trade admit to be wanted.

## THE UNIVERSAL GAS BURNER.

AMONG the many gas burners recently devised, that constructed by Prof. Teclu, of Vienna, and illustrated in the accompanying figure, is a marked advance on the old form of Bunsen, many of the faults possessed by other existing burners being completely avoided by the ingenious and practical arrangement he has adopted.

The chimney of the burner is expanded to a funnel shape at the lower end. In the centre of this is a female screw, fastened to the inner wall of the funnel, which works on a vertical, hollow screwed cylinder, through which the gas passes into the chimney. Beneath the funnel is a circular plate which can be screwed up and down the central screwed cylinder; the latter is firmly fixed in the foot of the burner and has two side openings. One of these serves for the introduction of the gas, whilst the other, exactly opposite the former, admits a screw provided with a milled head, by means of which the gas supply is regulated. The gas passes then into this tube and thence into the burner tube, at the mouth of which it is lighted. If the moveable plate is screwed up close against the funnel shaped end of the burner tube a yellow luminous flame is produced, whereas if the plate be screwed down a little, air enters at the funnel shaped termination and produces a partially luminous, and with a lower position of the plate a perfectly non-luminous flame is obtained.




With the lowest possible position of the plate the two cones of the flame are so far separated from one another that the inner one appears as a bright green region immediately above the end of the tube; by turning the regulating plate the two cones can thus be separated or approached at will, thus producing greater or less heating effects. This burner then produces according to the arrangement of the regulating plate, a flame resembling that of a Bunsen burner or one with the character of a blowpipe flame.

If a slit-shaped piece be inserted in the mouth of the burner, the opening being 55 × 2 mm., a flame is obtained when the regulating plate is at its lowest position in which a copper wire six inches long and five square mm. in cross section, commences to melt after one minute.

Potash glass tubes (up to 18 mm. external diameter and 2 mm. thickness of wall) can be easily and rapidly bent by the aid of the smallest size of burner made.

The "Universal" gas burner is made in two sizes. (1) With a tube 145 mm. high and 16 mm. internal diameter, and (2) with a tube 100 mm. high and 10 mm. internal diameter.

The following additional pieces are suitable for use with these burners; the letters correspond with those in the accompanying figures:

(*a*) Perforated burner, 120 and 70 mm. in diameter, by means of which a uniform distribution of the heat in evaporations, etc., is attained.

(*b*) Crossed slit burner, 85 and 50 mm. in diameter, useful for boiling beakers, flasks, etc., gives a uniform and high degree of heat over a small area.

(*c*) Slit burner, very useful for heating tubes to be bent or drawn out.

A further great advantage of the Teclu burner arises from the simplicity of its construction, which avoids the necessity of repairs and renders cleaning a very simple matter.

These burners are being made and supplied by Franz Hugershoff, of Leipzig, from whom further information can be obtained.

## A CARBONIC ANHYDRIDE REFRIGERATOR.

A NEW system of refrigeration has been introduced into this country by Messrs. J. and E. Hall, of Dartford. The machine consists of three parts—the evaporator, the compressor, and the condenser. The liquefied carbonic acid is evaporated in the evaporator, which consists of a series of coils surrounded by brine. It is then drawn into the compressor and raised to the liquefaction pressure. It then condenses into a liquid within the coils of the condenser, whence it flows into the evaporator and so on in a closed cycle. The evaporation of the liquefied carbonic anhydride cools the brine surrounding the evaporator coils to within a few degrees of itself. The brine thus cooled circulates in the freezing rooms, cold stones, or between the ice moulds in ice factories, abstracting the heat from the water or the goods to be frozen. These machines are said to effect the same work as the older dry-air refrigerator on one-seventh the coal consumption and with one-fifth the weight of machinery. The machine which is now working at Dartford is equal to producing 24 tons of ice per day of 24 hours, and is very small and compact for its power. It has been made to the order of Messrs. Nelson Brothers, for their largest sheep-freezing establishment in New Zealand, where over 2,000 sheep are frozen per day. The machine was ordered in consequence of the successful running of a similar one at another freezing establishment at Napier, which showed a remarkable economy in coal. These machines are also in use at several establishments and on board several steamships, including some of the White Star liners, for refrigerating purposes.

## THE USE OF HIGH PRESSURES IN CHEMISTRY.

By H. N. Warren.

THE mode of construction of tubes for this important operation has already been described (Chemical News, vol. lviii., 155). Since that period, however, a somewhat more robust apparatus has been made use of, and intended for dry heats. The plan of construction being almost essentially the same as in former instances, save that the copper casement is replaced by one of wrought iron, to the extent of four inches thick, being provided with a drilled orifice of half an inch circumference and extending to within an inch of the bottom, inside of which is inserted either a small platinum or porcelain tube according to the nature of the experiment. The platinum tube with its contents being hermetically sealed before the oxyhydrogen blowpipe, and after inserting the same packed with dry magnesia, the top is then closed by the aid of a powerful screw extending within the orifice to the length of two inches and terminating in a handle, so as to ensure of sufficient leverage power being applied to readily expose the contents after cooling.

In order to test the efficiency of the apparatus, the inner or platinum tube was half filled with pure precipitated calcium carbonate, closed, and heated to whiteness by the aid of a wind furnace. On opening the same, after cooling, a stick of perfectly fused substance was obtained, possessing all the properties of marble, being somewhat more translucent. By substituting for the platinum a porcelain tube, arsenicum metal was completely fused, presenting a silvery lustre.

A modified form of apparatus is at present under construction in which both the temperature and pressure may be lowered at will. Several interesting results have been already obtained, in which the author ultimately hopes to lead to some improvements in organic synthesis.

Duties on Nitrate and Iodine.—The Chilian Chamber of Deputies has passed a bill imposing duties on nitrate and iodine.

# Official Memoranda.

*From the Board of Trade Journal.*

## THE PETROLEUM TRADE OF THE CAUCASUS.

Aassib Effendi, Turkish Consul-General at Tiflis, has just addressed to his Government a very interesting report on the petroleum trade of the Caucasus. Extracts from this report are given by the *Journal de la Chambre de Commerce de Constantinople* for the 11th June, in which the following passages occur:—

The petroleum springs of the peninsula of Apcheron, not far from the place at present occupied by the town of Baku, were already known several centuries before the Christian era, and the phenomena produced by them, totally inexplicable in those barbaric ages, gave rise to the worship of the Guebres, followers of Zoroaster, which lasted into the nineteenth century, for the temple of the worshippers of eternal fires is seen to the present day.

Up to 1828 the working of petroleum was entirely free, and was not subject to any surveillance or control.

From 1821 to 1825 the revenue adopted the system of farming, and all the springs together produced no more than 130,000 roubles per annum to the profit of the Treasury.

In 1825 the Government abandoned the system of farming in order to work the springs themselves, but at once the revenues immediately fell to 76,000 roubles.* From 1825 to 1830 they were farmed for 97,000 r. From 1831 to 1834 farming produced 91,000 r. From 1834 to 1850 the working passed a second time into the hands of the revenue and yielded about 100,000 r. per annum. From 1850 to 1854 the springs were farmed for 110,000 r., and up to 1873 the result of farming was the sum of 136,000 r.

It is since 1873 that the petroleum industry has entered into its phase of progress and of development by reason of the decision taken by the Government to throw it open to private enterprise, by selling the petroleum lands, divided into lots of ten square deciatines each, to private persons. At that time the lands sold contained no more than 221 wells.

The celebrated springs of Balakhani are situated 20 kilometres distant from Baku, on a bare and arid plateau, swept by the winds, at an elevation of about 60 metres above the level of the Caspian Sea. The appearance of this place is very dull and wretched.

The petroleum lands occupy an area of about 8 kiloms.; Balakhani and Gourakhani are connected by a railway with the town of Baku.

In the opinion of well-informed persons the whole of this region is of volcanic origin.

At the present time Balakhani and Sabountchi possess more than 1,000 wells, some of them newly bored, producing in 24 hours as much as 400,000 pouds.

From 1873, when the production was only about 4,000,000 pouds†, to 1882, when it was 50,000,000 pouds, the progress of this industry was constant. But on selling the petroleum lands, as mentioned above, the Government levied taxes on the products of distillation. It was to receive 25 copecks (8d.) per poud of the distilled products, and for this purpose special regulations were drawn up, according to which these taxes were collected for the time taken to distil the petroleum in stills of a certain volume. This system did not fail to bring about the result that might have been expected. All the small merchants endeavoured to accelerate distillation in order to produce a greater proportion of products within a given time, no matter what the quality might be. The petroleum decomposed and produced fires and explosions, and every effort was made to over-ride the law by paying a tax of only two or three copecks instead of 25 copecks per poud. By reason of this deplorable state of affairs, more than half of the 200 Baku works closed their establishments, whilst the remaining ones were put to considerable loss by reason of the engagements entered into.

The price of kerosine fell to an enormous extent and the naphtha trade entered into a terrible crisis, and it was at this time that the Government came to the aid of the industry by abolishing the taxes.

As a result of this action the producers bestowed their attention on the quality of the merchandise; improvements and machines of every kind were introduced, and among these works that of M. Nobel occupied the front rank. The house of Nobel Bros. was the first to introduce into the naphtha industry all the technical and scientific methods applicable to this branch. It started at Baku in 1874; the following year it purchased a small business and undertook the production of petroleum on a small scale. At this time the conveyance of petroleum to Baku was effected by means of carts and leather bottles. M. Nobel endeavoured to show the absurdity of this primitive method of transport, and recommended that pipes should be constructed, but the majority of the merchants rejected the proposal. This gentleman then constructed the first pipe at his own cost, and demonstrated the utility of it to his colleagues, several of whom very soon imitated his example, and Baku has to-day a dozen lines of pipes, each of which costs more than 100,000 roubles. The Nobel house did not shrink before any difficulty; it brought specialists from America and utilised their knowledge; and in a short time it was at the head of the petroleum industry. Another innovation carried out was as follows:—The petroleum was shipped in barrels, a system which had many drawbacks; the proposition made by Nobel to the Kavkaz and Mercury Navigation Company of the Caspian and the Volga, to build tank boats intended for the exclusive conveyance of the petroleum, having been also rejected, the firm of Nobel constructed several of these vessels at their own expense. This innovation, of which even the Americans had not yet thought, was accepted by the two petroleum-producing countries, and the tank boats, the number of which is constantly increasing, are to be found on all the waters of the civilised world.

It is also to Nobel that those gigantic reservoirs of iron which contain hundreds of thousands of naphtha products are due, and which are to be seen in such large numbers in Baku, Batoum, and everywhere else where petroleum is carried in bulk.

The series of innovations by M. Nobel do not stop there. With a desire to improve land carriage he proposed to the Griazi-Tsaritsine railway the construction of special tank waggons for the transport of the petroleum, guaranteeing a load for them for several years; the railway scorned the idea, and it was by the expenditure of very large sums that the Swedish merchant constructed for his own use the first tank waggons. The scorn immediately changed to enthusiasm, and to-day thousands of these waggons circulate on the railways of Caucasia and Griazi-Tsaritsine.

Up to 1887 the Nobel house, owing to the millions at the disposal and the impulse given by it to the naphtha trade had almost eclipsed all the other houses in competition with it; but when in 1887 the Rothschild house of Paris took a part in the Russian petroleum industry, Nobel took a secondary place. Since that time, owing to the competition brought about by the participation of Rothschilds in this trade, the extraction of naphtha and its derivatives has increased in enormous proportions, as the following figures go to show:—

| Years. | Raw Naphtha. | Petroleum. |
|---|---|---|
| | Pouds. | Pouds. |
| 1887 | 165,000,000 | 44,000,000 |
| 1888 | 192,000,000 | 50,240,000 |
| 1889 | 205,000,000 | 61,485,242 |
| 1890 | 239,000,000 | 68,379,049 |

The petroleum exported from Baku from 1888 to 1890 inclusively is distributed as follows:—

| Years. | Batoum. | Persia. | Russia. | Total. |
|---|---|---|---|---|
| | Pouds. | Pouds. | Pouds | Pouds. |
| 1888 | 28,415,123 | 265,321 | 21,559,565 | 50,240,000 |
| 1889 | 37,060,594 | 385,447 | 24,039,201 | 61,485,242 |
| 1890 | 44,198,743 | 312,465 | 23,867,840 | 68,379,049 |

The following gives the quantity of other derivatives of naphtha for the same years:—

| Years. | Lubricating Oil. | Benzine, Gasoline, and other Derivatives. | Residues. |
|---|---|---|---|
| | Pouds. | Pouds. | Pouds. |
| 1888 | 2,576,000 | — | 61,846,000 |
| 1889 | 3,350,000 | 303,000 | 88,886,000 |
| 1890 | 4,518,000 | 522,000 | 96,906,000 |

The quantity of petroleum exported to foreign countries by way of Batoum, for the same period of three years, is distributed as follows:—

1888, 22,540,352 pouds; 1889, 29,383,595 pouds; 1890, 36,211,838 pouds.

The following is a statement of the foreign countries to which petroleum was exported in 1890, as well as of the quantity for each:—

Austria, 6,489,000 pouds; England, 7,870,000; Belgium, 2,095,000; Germany, 422,000; Netherlands, 562,000; Italy, 1,740,000; Portugal, 16,000; France and Algeria, 194,000; Danubian States, 592,000; Greece, 2,242,000; Turkey, 2,583,000; Malta, 82,000; Philippine Islands, 431,000; India, 4,080,000; China, 2,474,000; Japan, 2,482,000; and Indo-China, 3,131,000 pouds.

* *rouble equals* 2s.8d. † pound equals 36 lbs.—Ed. *C. T. J.*

The quantity of raw naphtha and its derivatives exported from Baku, from 1888 to 1890, is distributed as follows:—

1888, 6,007,607 pouds to foreign countries, and 367,417 pouds to Russia; 1889, 7,073,011 pouds and 461,879 pouds; 1890, 6,212,667 pouds and 426,853 pouds.

The following statistical data are for the year 1891, during which the naphtha industry has realised further enormous progress:—

In that year there were exported 9,839,352 ponds of raw naphtha, 72,885,331 pouds of lamp oil, 6,187,966 pouds of lubricating oil; total, 187,141,870 pouds.

Of this quantity there were conveyed by sea 9,239,291 pouds of naphtha, 25,784,700 pouds of lamp oil, 917,120 pouds of lubricating oil, and 89,787,466 pouds of naphtha residues; by railway, 600,061 pouds of naphtha, 47,100,631 pouds of lamp oil, 5,270,846 pouds of lubricating oil, and 8,441,155 pouds of residues.

The petroleum was distributed as follows:—25,236,502 pouds for the interior of Russia, 219,641 pouds for the different regions of Trancaucasia, 328,557 pouds for Persia, 46,204,273 pouds for Batoum, and 896,358 pouds for different localities situated along the track of the railway.

The total of the naphtha extracted during the year 1891 was 289,575,400 pouds.

## COFFEE ADULTERANTS IN CANADA.

The Toronto *Monetary Times* says that for the protection of the public health and pocket it has been enacted that where chicory, roasted grain, or other mixtures are sold as a substitute for coffee, the packets containing the mixture shall be labelled in conspicuous characters as a compound or mixture. From the Bulletin No. 29 of the Inland Revenue Department at Ottawa we learn that out of 140 samples of coffee analysed by the department last year, nearly 40 per cent (39·4) were adulterated. We know, of course, that many people prefer a chicory mixture to pure coffee; and we know, too, that most people decline to pay the 45 cents per pound that genuine coffee costs, preferring to invest in a cheaper mixture at 30 or 35 cents, which consists of roasted grain, chicory, etc., with a little coffee for flavouring. The aim of the law is to protect the consumer in so far as that he shall know whether he is getting the real thing or some imitation. If people want to drink coffee made of roasted peas, or even roasted and flavoured corn cobs, there is nothing to prevent them; only a maker must not label his flavoured corn-cobs genuine coffee.

There are 20 or 30 makers in the list of samples examined by the Dominion analysts. Chase and Sanborn, of Montreal, appear oftenest, and they have nothing to be ashamed of, so far as we see. Out of 20 samples of their goods, variously Rio, Mocha, and Java, 14 are pronounced genuine, three or four are called "compounds," and in four cases their "standard Java" and "choice coffee" are adjudged to contain adulterants. Out of eight samples of so-called coffees collected at retail groceries in Montreal, not one is genuine, though they are all called "choice coffee," but contain roasted peas, beans, and maize. One maker, name unknown, puts husks and corn starch into his. Out of 12 samples collected in Hamilton and Toronto, only two are pure coffee, the others containing flour and other farinaceous matter, and the inevitable chicory. The percentage of this last ingredient varies; sometimes it is 20 to 30, and sometimes 48 to 75 per cent. "In the case of adulterated samples," says Mr. Macfarlane in his report, "the soluble matter varies in amount from 25 to 68 per cent., the higher figures being always occasioned by the caramel, gum, soluble starch, and dextrin contained in the substances which are mixed with the coffee in order to produce a cheap article.

"The manufacturers of sophisticated coffee do not by any means confine themselves to the use of chicory. Roasted peas and grain are also ground in with and sold as part of the resulting 'compound.' There are, moreover, large quantities of a substance imported under the name of 'essence of coffee' for adulterating purposes, which is a species of burnt sugar, and, from its containing dextrin, is probably made from some of the bye-products of the glucose factories. It costs in New York and Philadelphia from 3 to 5 cents per pound. As it possesses no organic structure it is apt to be overlooked in the microscopical examination. It contains about 75 per cent. of matter soluble in water, which has great colouring power, and a little of it is capable of imparting a strong brown coffee colour to water. It would seem," adds the chief analyst, "that the importation, manufacture, or sale of such an article is as much deserving of prohibition as the manufacture of oleomargarine."

The object of the law, however, which is to compel every maker to label his goods "compound" if they are a compound, and "coffee" if real coffee, has not as yet, it appears, been attained, though 27 persons have been prosecuted last year; 14 of these owned up and paid costs, the other 13 have been or are being sued.

# Reports of Companies.

### SAN SEBASTIAN NITRATE CO., LD.

At the third annual meeting of this company held at London recently, Mr. A. M. Robertson, who presided, stated that the capital expenditure on new works, etc., for the year was £1,777. The accounts showed that the Sacremito officina, notwithstanding the effects of the civil war, had earned a profit of £4,721. The loss at the Tegethoff officina amounted to £6,329, and arose solely from extensive and heavy depreciation of stock in connection with the closing down of the officina. Work was resumed there last December, and the results were of an encouraging nature. All the English nitrate companies had now joined the combination, and he thought they ought to be able to arrange a price of from £9. 10s. to £10. per ton. They were now receiving 6s. 1½d. per quintal. [Quintal = 123·2 lbs.—Ed. *C. T. J.*] The report was adopted.

## MEETING OF CREDITORS.

### THE FYLDE RUBBER CO., LIMITED.

A meeting of the creditors of the Fylde Rubber Company, Limited, whose registered offices are at Fleetwood, was held last Monday, at the offices of the Official Receiver in Bankruptcy at Manchester. The Official Receiver (Mr. J. C. Dibb) presided, and there was a large attendance of creditors. The meeting was convened in accordance with the provisions of the Companies (Winding-up) Act, 1890. The statement of affairs showed unsecured liabilities £10,204. 17s. 3d., and no assets. There were assets estimated at £14,928. 0s. 11d., but they will go to meet the loans on debenture bonds, amounting to £14,881. 2s. 10d., leaving a balance of £46. 18s. 1d. The preferential creditors want £402. 17s. 7d., so that the assets are £355. 19s. 6d. less than nothing, as it were. The nominal amount of unpaid capital liable to be called up to meet the deficiency is said to be nil. The Official Liquidator (Mr. Dibb) states in his report that the company was registered on the 2nd March, 1889, and that it was formed for the purpose of, among other things, purchasing, carrying on, and developing the business of the Fleetwood Rubber Works and the works connected therewith, situated at Fleetwood. The nominal capital of the company was £30,000., divided into 4,000 ordinary shares of £5. each and 2,000 preference shares of £5. each, carrying a preferential dividend of 7 per cent. per annum. Of the ordinary shares only 2,007 had been alloted, namely 2,000 to Mr. Squires, one of the promoters and the managing director, as fully paid up, in part payment of his purchase money; and one to each of the seven subscribers to the memorandum and articles of association. Only £1. had been called up on the latter, of which five now stood in the name of Mr. Squires. Of the preferential shares 1,650 only had been alloted, namely 700 to Mr. Squires, as fully paid up, also in part payment of his purchase money, and the remainder to the persons who specifically subscribed therefor. A prospectus was printed "for private circulation only," but, according to Mr. Squires, "it was never issued or circulated." It, however, contained the following paragraph:—"The works are in full operation, and profits will be earned from the commencement." Whatever might be the explanation with regard to such paragraph, it must be pointed out, the report continued, that from first to last no profits whatever had been made by the company. Three balance sheets had been prepared; the first, as of 30th June, 1890 (certified 17th October, 1890), showed a trading loss of £3,693. 1s. 10d.; the second, as of June 30th, 1891 (certified 16th December, 1891), a trading loss of £6,189. 19s. 7d.; and the third, as of 31st December, 1891 (certified 2nd March, 1892), a trading loss of £454. 18s. 9d., making a total loss to 31st December, 1891, of £10,338. 0s. 2d.; but which, according to the deficiency account, stood at £11,250. 11s. Mr. Squires alleged the following as the causes of the company's insolvency:—(*a*) Bad trade in garments in 1890-91; (*b*) losses through bad debts; (*c*) losses in manufacturing in 1889-90; (*d*) losses through using wrong chemicals in proofing; (*e*) heavy interest and charges through scarcity of capital; (*f*) losses through changes in fashions and styles, imperials having superceded macintoshes; (*g*) insufficiency of capital, preventing the company from buying on good terms; (*h*) heavy charges for interest and discounting; and (*i*) cost of establishing the business, the turnover meanwhile being too small to show profits. He also stated that the company never had any available working capital after payment of the purchase money, except £15,000. advanced by the bank on loan, and £8,000. which he himself found; of this £8,000., £4,000. was raised on accommodation bills, which he accepted for the company, and which were discounted by the bank, and are now overdue and unpaid. Mr. Dibb, as Official Liquidator, concluded his report with the statement that he was of opinion that a public inquiry into the company's affairs was necessary, and he proposed to report to the Court accordingly.

Mr. Alfred Tongue, of the firm of Messrs. Edwin Collier and Co., Manchester, chartered accountants, was appointed liquidator, and five creditors were chosen as a committee of inspection to assist him in his work

## NOTICE.

### LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of
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# Correspondence.

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Braun Frères (Belgium).—Your request has been complied with.

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D. and Co. (Paris).—We are obliged to you for your intimation.

W. T.—We shall make preparation for the execution of your offer.

W. T. L.—We have sent you further information by post.

# Trade Notes.

Institute of Chemistry Reform Association.—An influential meeting of the supporters of this organisation was held at the Guildhall Tavern, London, on the 20th inst. It was resolved to take the necessary steps to render the Council representative of the members of the Institute. Letters from various sympathisers were read dealing with the questions at issue. An Executive Committee was elected, and Mr. Wm. Thomson, of Manchester, was requested to continue to act as Hon. secretary. A vote of thanks was passed to Mr. Wm. Thomson for his invaluable services.

Fatality at a Gas Works.—On Thursday last a fatal accident occurred at the Bollington Gas Works. A man named Fairbrother doing some work on an under-ground main was "gassed." Two other men in endeavouring to rescue Fairbrother were also overcome. On being removed from the scene of the accident all three were found to be dead. Those who took part in the attempt to rescue the deceased had a narrow escape from succumbing to a similar fate.

Personal.—The vacancy created at Owen's College, Manchester, by the death of the late Professor Schorlemmer has been filled by the appointment of Dr. W. H. Perkin, jun., F.R.S., as Professor of Organic Chemistry. Dr. Perkin was formerly Professor of Chemistry at the Herriot-Watt College, Edinburgh It is doubtless known to most of our readers that Dr. Perkins, jun., is the son of the eminent Dr. Perkins, who practically founded the aniline colour industry in this country. We wish Dr. Perkin, jun., every success in his new sphere of work.

Wool Grease Lubricants.—The soap formed by treating wool grease with alkaline lye is dissolved in water and filtered. To this a solution of alum or other alumina salt is added, whereby a brown precipitate is formed, which is called "aluminium lanolate." With this substance, when dried, lubricating oils of any viscosity may be produced by dissolving it in any fluid mineral oil. If dissolved in a small quantity of mineral oil, a gelatinous substance is obtained which may with advantage be mixed with india-rubber or gutta percha. Solvents for india-rubber are said to be also solvents for "aluminum lanolate." In textile industries this substance may also be used as a scouring agent.

Valuable (?) to Inventors.—It may be of interest to those who purpose at some time or another protecting their inventions by Royal Letters Patent to learn that on filing their provisional specification they may be favoured with a letter from the Parisian Inventors' Academy informing them that in view of their recent invention the academy has conferred on them the title of "Honorary Member, with award of first-class diploma and Great Gold Medal (*gilded*). This honourable title will *cost you nothing*, but if you are desirous of receiving the medal and diploma, you will have to send a money-order for *two pounds* to cover the taxes, freight, *etc.*" It must indeed be a "great gold medal" which, if gilded, is worth two pounds, for the diploma, it *is evident, cannot carry* much weight, if, as stated, it will "cost you nothing." Doubtless all inventors of repute will be only too eager to obtain the honorary membership of such an illustrious academy; but there seems to be a doubt as to whether you will get the latter unless you first part with the *specie* for the G. G. M., or rather to cover "admission taxes and freight." Two pounds sterling seems rather a heavy charge for such incidental expenses, but perhaps the New French Tariff has something to do with it, *and* perhaps it has not. Anyway, this case affords a splendid opportunity for some pantologist to define the line which divides the artifices of business acumen from the wiles of the proficient rogue.

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

There is very little demand for benzol, but prices keep up moderately well. We are approaching the time of the year when owing to the reduced production the market is rather sensitive. 90% is worth 1s. 8d., and 50/90's about 1s. 3½d. Anthracene is neglected. For 30% A 10d. and for 30% B 7½d. may be quoted. Pitch remains firm, and stocks are low.

The sulphate of ammonia market is still in a critical state, and in the absence of anything like a fair demand values seem inclined to shrink a little, but the available quantity being so small it is not to be anticipated that prices will decline much. Hull and Liverpool are again quoted at £9. 17s. 6d., and Leith at £9. 16s. 3d. to £9. 17s. 6d. Future business is entirely at a standstill, the ideas of sellers and buyers differing too greatly. Beckton price runs from £10. to £10. 2s. 6d., while London outside makes are changing hands at £9. 17s. 6d.

## THE METAL MARKETS.

LONDON, Wednesday.—Pig iron inactive. Scotch warrants closed at 41s. 3d. cash. Middlesbrough 40s. cash, and Hematite 50s. cash. Copper firm: Chili bars, G.O.B.'s and G.M.B.'s closed at £45. cash, and £45. 7s. 6d. to £45. 15s. three months. Tin steady: Straits closed at £95. 15s. to £96. 5s. cash, and £95. 10s. to £96. three months. Australian, £96. cash. English ingots, £98. 10s. to £99. Lead flat: Spanish, £10. 10s.; English, £10. 15s. to £10. 17s. 6d. Silesian spelter, ordinary, £21. 15s. Quicksilver, £7. 2s. 6d., first hands, £6. 19s. second hands. *Copper shares* quiet: Cape, $1\frac{9}{16}$ to $1\frac{11}{16}$; Copiapo, $2\frac{5}{16}$ to $2\frac{7}{16}$; Libiola, 2¾ to 3; Mason and Barry, $3\frac{5}{8}$ to $3\frac{7}{8}$; Rio Tinto, 15⅞ to 16; Tharsis, 4½ to 4¾; Namaqua, ¾ to 1; Panulcillo, ⅜ to ½.

GLASGOW, Wednesday.—Market quiet, with small business. Scotch done at 41s. 3d. cash, and 41s. 3½d. cash, also at 41s. 5d. one month, closing with buyers at 41s. 3½d. cash and 41s. 5d. one month, sellers ask 41s. 4d. cash and 41s. 6d. one month. Middlesbrough done at 40s. 1d cash; closing with buyers at 40s. cash, sellers ask 40s. 1½d. Hematite closes with buyers at 50s. cash; sellers ask 50s. 3d.

WOLVERHAMPTON, Wednesday.—Satisfaction was expressed on 'Change to-day at the business resulting from last week's quarterly meetings. Rather more has been done than was expected considering the generally quiet condition of trade. Pig iron prices are sustained by the limited output. It is estimated that 221 furnaces are idle in the North and Midlands out of 397 built, and of these about 130 are idle in the Midlands. Finished iron is in fair demand at last week's rates. Steel improving. Ordinary plates, £6. 10s.; girders, £6.

## REPORT ON MANURE MATERIAL.

Since the election excitement has to some extent subsided, there has been rather more doing, but business still drags, and prices remain without material alteration.

There are sellers of 75/80% Florida phosphate rock at 9d. per unit, in cargoes c.i.f. to U.K., but we do not hear of business at the price. Florida land pebble rock offers at 7¼d., and hot-air dried Peace River at 7½d. per unit. There are sellers of hot-air dried South Carolina River rock at 7¼d. per unit, and of land rock at 7d. The quotation for 50/55% ground Somme phosphate is 7¾d., for 70/75% 10¾d., and for 65/70% about 9¾d. per unit in cargoes c.i.f. to U.K. Ground osso 50/55% has been done at 7½d. per unit, and 40/55% Belgian at 6¾d. Further sales of 60/65% Canadian have been made at 6¾d., delivered Mersey, and there are sellers of 80% at 10d. per unit.

nothing to report in River Plate cargoes of bones. ipment is about £4. 5s., but suitable vessels are scarce, and ve been chartered for bones. There is some enquiry for bone ash, and lowest sellers would be willing to cable out on 70% nett, Hamburg terms. £4. 2s. 6d. has been crushed Kurrachee bones, for shipment, but it is doubtful purchase could be repeated. £4. 2s. 6d., ex quay Liver- ted for Rangoon bone meal, ex quay Liverpool, arrived, 6d. for Crofts No. 3 grist Calcutta now due. Nothing common grinding bones.

te of soda market is quiet, and prices are barely maintained. dinary quality is selling at 8s. 3d., and fine quality at Due cargoes are worth 8s 1½d. to 8s. 3d., according to size, quality about 3d. per cwt. more. May and June sailings t may be quoted 8s. 4½d. per cwt., July and August 1, and later sailings 8s. 7½d. to 8s. 9d. per cwt.

nothing special to report in other manure material.

## CELLANEOUS CHEMICAL MARKET.

e no changes of importance to record in the position of any cts of the alkali trade. Demand on the whole is somewhat verage, but, owing to the central control now exercised by Alkali Co., prices are without change. Spot quotations for are :—F.o.b. Tyne, 77%, £11. 15s. and f.o.b. Liverpool, 5s. ; 70%, £10. 5s. ; 60%, £9. 2s. 6d. Cream, 60%, ., 10 ton lots and upwards. Soda ash is, if anything, in ur, and prices are nominally 1$\frac{5}{16}$d. to 1⅜d. per degree a crystals and bicarbonate are steady at the prices that have for some time past. Bleaching powder is still at £7. 10s. at makers' works for spot deliveries, and some increase from the Continent is looked for, in consequence of the demic. The like cause has created strong demand for dis- enerally. Carbolic acid, with all crude tar products which nally understood to go under that description, have been demand during the past 10 days, with consequent sudden es. Crystal carbolic is quoted about 1d. per lb. advance, in all grades from 3d. to 6d. per gallon higher. Acetates ontinue quiet. Brown acetate of lime is ruling from £5. 15s. ton on the spot. Acetate of soda, £16. 15s. c.i.f. White d continues steady in price, but only finds limited sale. f copper without improvement at £15. f.o.b. Recovered ninally £5. per ton f.o.r., but resales still offering at £4. 15s. 6d. per ton. Borax, 29s. per cwt. Chlorate of potash is esellers at 6½d. to 6¾d. Chlorate of soda scarce at 8d. stic and carbonate remain steady in value. Aniline oil and hout improvement either in price or demand. Complaints many quarters about the prevailing dulness of trade.

## ERPOOL OIL AND COLOUR MARKET.

LIVERPOOL, WEDNESDAY.

Palm oil : there has been rather more doing in Lagos at nd Benin £19. 10s. The market is steady. Olive is steady, iness passing at £32. 10s. to £38. per tun has been limited, as of the olive crops has hardened prices in the foreign markets, ar movement may be looked for at home. Linseed con- ly, with little prospect of change, at 20s. 3d to 20s. 6d. per port casks. Cottonseed is in steady demand, with Liverpool 19s. 6d , and American 20s. per cwt. Castor oil : good lcutta have been moving much more freely, but at a reduced ely 2⅜d. per lb. The stocks offering at this price having ed, sellers again ask 2½d., and are firm at this. First ench is still quoted 2$\frac{11}{16}$d. per lb. Tallow : the market is ant, but prices are nominal. Resin, common, is quoted at but there is nothing doing. It was quoted at 3s. 9d. at the week, but without inducing business. Spirits of turpentine, ception, have ruled all the week at 23s., at which price ady, but few sales are reported. American petroleum and ined unaltered, the closing of the Baku works may shortly uotations for Russian in sellers' favour.

RS.—Prices are unchanged. Ochres: Oxfordshire, 10., medium, £12., best, £15. ; Derbyshire, common, 40s., 0s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, h, Devonshire, 40s. to 45s. ; French, J.C., 55s. to 60s. ; to 67s. 6d. Umber : Turkish quiet. Devonshire, 50s. to te lead, red lead, and oxide of zinc unchanged. Venetian 10s. to £10. Cobalt : Prepared oxide, 10s. 6d. ; black, lue, 6s. 6d. Zaffres : No. 1, 3s. 6d. ; No. 2, 2s. 6d. on : common, £6. ; medium, £10.; finest, £20.

## THE LIVERPOOL MINERAL MARKET.

The market continues firm. Manganese : Only one small parcel has arrived this week ; prices continue unchanged. Borate, 7d. per lb. ; sulphate £21. 10s. ; oxalate, 1s. 6d. per lb. ; chloride, £15. ; carbonate, £12. 10s., steady. Magnesite : Raw lump, stocks large ; prices quiet. Raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand) continues firm at full prices ; lump 20s., seconds 16s., and thirds 12s. French chalk : Arrivals are limited, whilst a steady business is doing at full prices. "Angel White" brand and "Silvery," 90s. to 92s. 6d. ; prime quality, 90s. to 95s. ; and superfine, 105s. Barytes : Carbonate, best lump continues scarce at 90s. to 95s. ; nuts, 70s. to 80s. ; whilst finest white sulphate is in demand. "Angel White," No. 1, 70s. ; No. 2, 60s. to 65s. ; No. 3, 45s. Pumicestone steady. Iron ore steady ; Bilbao, more offering ; other shipments have changed hands at fair figures ; Irish and Cumberland easier. Santander and manganiferous, there is more doing. Emerystone : Best brands in demand at full figures. No. 1 lump, £5. 10s. to £6. ; smalls, £5. to £5. 10s. Fullers' earth quiet ; best lump, 55s. ; fine impalpable ground, £7. ; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal firmer. Chrome ore steady at full figures. Antimony ore and metal flat ; prices firmer. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. 10s. Calamine quiet. Strontia sulphate (celestine) quiet. Limespar is steady, especially for English manufactured ; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar : Best quality scarce. Ferro-manganese somewhat easier, but prices are unchanged. Plumbago brisk. Spanish, £5. ; best Ceylon lump at last quotations ; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6. ; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady ; common, 18s. 6d. ; good medium, 22s. 6d. to 25s. ; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) steady ; finest quality 22s. to 23s.

## TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals continue steady, with good demand for bleaching powder at £7. 10s. f.o.b. nett cash. Caustic soda unaltered.

Bleaching powder, softs, £7. 10s. and £7. 12s. 6d. per ton, and hards, £7. 15s. and £7. 17s. 6d. per ton ; caustic soda, 77/76%, £11. 15s. per ton, 70%, £10. 5s. per ton ; recovered sulphur, 2 cwt. bags, £5. per ton ; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton ; alkali, 36%, £4. 18s. 6d. per ton ; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52%, £7. per ton ; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton, in 10 ton lots ; silicate of soda, 75° Tw. £3. per ton, 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per ton ; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight ; chlorate of potash, 7d. per lb. less 6% ; pearl hardening, £3. 10s. per ton nett ; pure white sulphate of alumina, £4. 10s. per ton ; blanc fixe, £7. 10s. per ton ; chloride of barium, £7. 10s. per ton ; nitrate of baryta crystals, £19. per ton ; ground, £19. 10s. per ton ; sulphide of barium, £7. per ton ; carbonate of alumina, £28. 10s. per ton ; aluminate of soda, £33. 10s. per ton ; hydrate of barium, £11. per ton.

South Durham salt shows no alteration ; price being 9s. 6d: to 10s. per ton, f.o.b. Tees.

Coals : Trade is on the whole firm ; there is a good demand and the majority of collieries are in full work. Best steam coal, 10s, 6d. f.o.b. Tyne ; small steam, 4s. 3d. to 5s. per ton ; gas coal, 8s. 6d. per ton ; manufacturing coal, 5s. 6d. to 6s. 6d. per ton delivered at works on Tyne, according to position of colliery. Coke quiet, 16s. to 17s. per ton f.o.b.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

All the works in and around Glasgow, closed last week for the annual holiday of the workmen. Those of Dunbarton and of other considerable outlying places in the West of Scotland, go on holiday simultaneously with Glasgow, so that the district for the time is practically non-productive. In brisk times, work would be in process of resumption at this stage of the ensuing week, but the times having long been dull there is no hurry, and hardly any works have restarted. Business places also closed on Friday, and are now only reopening, so that the usual market signs are wanting ; but, it is quiet certain that the general feeling in chemical products is still one of comparative depression. Bleaching powder is rather scarce and holds late quotations, but with no indications of further rise. Sulphate of copper is thought to have made a slight recovery, but in all the others, signs of

change either way are absent, except perhaps in the case of sulphate of ammonia which is reported to-day, to be rather weaker than it was a week ago.

In paraffins the position is quite unchanged, but the approaching meeting of makers and manufacturing consumers to discuss the future of of scale and wax, is anticipated with growing anxiety, as so much depends upon it.

Chief prices current are:—Soda crystals, £2. 17s. 6d., nett Tyne; alum in lump, £5. 10s., nett Glasgow; soda ash, 1⅜d., nett Tyne; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 7s. 6d. and 1 cwt. casks £6. 15s., nett Liverpool; refined alkali, 1⅝d., nett Tyne; bleaching powder, £7. 10s. to £7. 12s. 6d. nett Tyne; saltcake, 36s. 6d.; borax, English refined, £29. and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 6⅝d., less 5% any port; nitrate of soda, 8s. 3d.; sulphate of ammonia, £9. 15s. to £9. 17s. 6d. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £15. 5s., less 5% Liverpool; paraffin scale (hard), 2$\frac{15}{16}$d., and soft 2$\frac{5}{8}$d. to 3d. per lb.; paraffin wax, 120°, semi-refined, 3⅝d. to 4d.; paraffin spirit (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales about 1d. lower); ditto (lubricating), 865°, £3. 5s. to £3. 15s., 885°, £4. 10s. to £6., and 890/895°, £5. to £7. Week's imports of raw sugar at Greenock were 29,056 bags.

## THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report dated Liverpool, July 19th, 1892, state :—

The Chili charters for the past fortnight are advised as 1,200 tons, making the total charters since 1st January, 12,150 tons. Exchange 17⅛d.

Copper G.O.B.'s and G.M.B.'s—There has been very little change in values during the past fortnight, £45. cash and £45. 10s. three months, being the highest point touched, and £44. 8s. 9d. and £44. 17s. 6d. respectively the lowest, closing firm to-day with buyers at £44. 13s. 9d. cash and £45. 2s. 6d. three months.

In their Metal Market Report of the 14th July, Messrs. Henry Rogers, Sons and Co., of London, wrote as follows, *re* the combination :—

"We are not aware that the actual details of the agreement lately effected between the copper producers of the United States and Europe have yet been published, and we therefore make no apology for giving them at some length.

The United States Mines, including the Anaconda, Calumet and Hecla, smaller Lake companies, Quincey, Osceola, Kearsage, Tamarack, Old Dominion, Copper Queen, Holbrook and Cave, Arizona, Detroit, Buffalo, Long Island, United Verde, Parrott, Boston, and Montana, and Butte and Boston have undertaken to limit their production from the 1st July, 1892, to 30th June, 1893, to 125,217 tons. It is estimated that the other supplies available in America will amount to 9,375 tons, to which must be added pyrites containing 5,134 tons of fine copper.

The total quantity of copper, therefore, that can be available in America for the home trade and export will be a maximum of 139,726 tons.

On the other hand, the principal European and other mines, including the Rio Tinto, Tharsis, Quebrada, Cape Copper, Wallaroo, Mason and Barry, Namaqua, Mansfield and Boleo mines have agreed to limit their production during the same period to 73,759 tons, being, in the main, 5 per cent. under their production in 1891. The Tharsis, Mason and Barry, and Namaqua companies take a different period for comparison (their output for 1891 not affording a fair basis), but the variation, in dealing with figures of such size, is unimportant.

The agreement is made for a year, but it is the hope and wish of all concerned that it should be renewed from year to year in such a way and on such basis as shall supply the wants of the world in copper, and at the same time indirectly maintain the price at profitable level to the large producing interests."

The total stocks in Liverpool, Swansea, London, and Havre show an increase of 2,270 tons for the fortnight.

The stocks include about 3,600 tons of copper sold, but not yet delivered to smelters.

The visible supply shows an increase of 2,083 tons for the fortnight, and the total deliveries for the fortnight are 3,952 tons.

The present stock of English G.M.B.'s in warehouse, Liverpool and *Swansea*, is 2,722 tons, against 2,637 tons on the 1st inst. The delivery in Liverpool and Swansea was 200 tons, but 285 tons being added to the Swansea stock, makes an increase of 85 tons for the fortnight.

Refined and manufactured sorts are quiet. Official quotations being :—Tough cake £47. 10s. to £48., best select £48. 10s. to £49., Indian sheets £52. to £53., strong sheets £57., and yellow metal sheets 5d. per lb.

The sales of furnace material comprise—at Liverpool : 184 tons Alosno precipitate, at 9s. 1½d.; 6 tons Aljustrel precipitate, at 8s. 9d.; 46 tons Spanish precipitate, on private terms; 200 tons Mexican ore, at 8s. 1½d.; 24 tons Spanish ore, at 7s. 9d. per unit; 50 tons Argentiferous Chili regulus and 17 tons Argentiferous Chili ore, on private terms; 28 tons Argentiferous Peruvian regulus, on private terms; 18 tons Coro Coro Barilla, on private terms; and 1,600 tons Argentiferous Anaconda Matte, forward delivery, also on private terms. At Swansea : nil.

# New Companies.

Lithanode and General Electric Co., Limited.—This company was registered on the 8th inst., with a capital of £100,000., in £1. shares, to enter into and carry into effect an agreement to be made between the Mining and General Electric Lamp Company, Limited, and its liquidator of the one part, and this company of the other part, and to carry on the business of electricians, mechanical engineers, gas engineers, lamp manufacturers, manufacturing chemists, contractors for public and private works, suppliers of electricity, etc. The subscribers are :—

| | Shares. |
|---|---|
| J. E. Huxtable, 14, St. Helen's-place, E.C., solicitor | 1 |
| C. H. B. Ince, 102, Alexander-road, South Hampstead, solicitor | 1 |
| L. Mossop, B.A., 7, Cambalt-road, Putney | 1 |
| C. R. Pearson, 2, Balfour-terrace, High-road, Leytonstone | 1 |
| J. E. Wood, 10, Placquett-road, East Dulwich, S.E., clerk | 1 |
| A. C. Crane, 3, Wood-lane, Highgate, N., clerk | 1 |
| J. H. Gedge, 14, Abbeville-road South, Clapham Park | 1 |

Oleum Co., Limited.—This company was registered on the 11th inst., with a capital of £100,000., in £1. shares, to acquire, develop, and work, or otherwise deal with the patent granted to Mr. J. D. Sprunt, dated October 29, 1891, and No. 18,707, in respect of an invention for improvements in vessels or containers for petroleum or other liquids; to acquire petroleum or oil-bearing lands, to sink wells, and to search for, pump, and get petroleum and other mineral oils. The subscribers are :—

| | Shares. |
|---|---|
| S. Craig, 275, Camden-road, N.W. | 1 |
| J. Haggerty, 8, Swallowfield-road, Charlton, Kent | 1 |
| W. Tayler, 95, Riversdale-road, Highbury, N., accountant | 1 |
| A. C. Bruce, 36, Dartmouh Park-road, N.W. | 1 |
| A. W. Bradfield, Gordon House, St. Paul's-road, Tottenham, clerk | 1 |
| G. Murchison, 91, Albany-street, N.W., accountant | 1 |
| F. Tolhurst, 6, Felday-road, Lewisham, clerk | 1 |

Portland Cement Corporation of New Zealand, Limited.—This company was registered on the 11st inst., with a capital of £40,000., in £1. shares, to carry on the business of cement manufacturers and dealers, to acquire the rights of Mr. A. E. Carey, under an agreement dated Jan. 13, 1892, but executed in New Zealand on March 9, 1892, between the Millburn Lime and Cement Co., Limited (a company registered in New Zealand), of the one part, and Mr. A. E. Carey of the other part, and to enter into an agreement with the said company for the purpose of acquiring the business of cement manufacturers, carried on by the said company at Dunedin, New Zealand. The subscribers are :—

| | Shares. |
|---|---|
| A. P. Mack, Park Lodge, Belvedere, Kent, engineer | 1 |
| C. E. Everitt, 38, Seething-lane, E.C., wine merchant | 1 |
| C. Blundy, 4, Meeson-road, West Ham, clerk | 1 |
| H. K. Gow, 36 and 37, Leadenhall-street, solicitor | 1 |
| V. Shomasset, 25, Bucklersbury, E.C., solicitor | 1 |
| H. E. Young, 159, Westbourne-terrace | 1 |
| W. H. P. Stephens, Buscott, High Barnet, clerk | 1 |

# Gazette Notices.

### PARTNERSHIPS DISSOLVED.

W. B. Dyson and W. Arkinstall, under the style of Dyson and Arkinstall, Gloucester-road, Kensington, chemists.

G. Allen, F. W. Henckel, and S. J. Leek, under the style of C. W. Lucas and Co., New North-road, N., soap and perfume manufacturers, as far as regards S. J. Leek.

A. A. Jones, T. J. D. Jones and D. G. D. J. Jones, under the style of J. R. Jones, Ysceifiog, Flintshire, paper manufacturers, as far as regards A. A. Jones.

T. Hindle, J. Bibby, and J. Duerden, under the style of Hindle and Co., Church, manufacturers and vendors of a composition called anti-rust.

### Receiving Order.

Hay, William Francis, Teviot-street, Bromley-by-bow, oil and colourman.

# The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

## APPLICATIONS FOR LETTERS PATENT.

Extraction of Copper, Gold, Silver, etc. J. Nicholas. 12,343. July 4.
Cleaning, Dusting, etc., Tin and Terne Plates. J. T. Richards, J. Paton, and W. H. Davies. 12,386. July 4.
Improvements in the Production of Oxygen Gas. A. V. Newton. 12,387. July 4.
Recovery of Benzol, Alcohol, etc., from Air or Gas. S. Pitt. 12,390. July 4.
Compound for Purifying Sewage. A. S. Chinnock, W. Fairley, C. E. McLaren, and P. Meeks. 12,392. July 4.
Removing Burrs, etc., from Wool. S. E. Stirzaker and K. H. Roberts. 12,420 July 5.
Illuminating Gas from Mineral Oil. W. Young and A. Bell. 12,421. July 5.
Fixing Ammoniacal Nitrogen for Agricultural Purposes. J. T. Knowles. 12,432. July 5.
Manufacture of Gas. H. H. Lake. 12,441. July 5.
Lead Paints from Lead Ores, etc. T. H. Cobley. 12,447. July 5.
Electricity Meters. J. Edmondson and J. Oulton. 12,468. July 6.
Treating Argentiferous Ores. J. David. 12,491. July 6.
Extracting Silver and Base Metals from Ores. J. David. 12,492. July 6.
Grinding or Crushing Mills. T. W. Brittain. 12,493. July 6.
Machinery for Treating China Grass. G. E. Donisthorpe and T. Burrows. 12,513. July 6.
Preventing Incrustation in Boilers. G. P. Gardner. 12,552. July 7.
Extraction of Gold and Silver from Ores. C. M. Pielsticker. 12,554. July 7.
Anthra-Quinone Derivatives. B. Willcox. 12,579. July 7.
New Alizarine Derivatives. B. Willcox. 12,580. July 7.
Manufacture of Dextrine. T. Bayley. 12,586. July 8.
Filters. K. Hampton. 12,622. July 8.
Manufacture of Acetic Acid Derivatives. C. Lowe. 12,660. July 9.

# IMPORTS OF CHEMICAL PRODUCTS
AT
# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending July 9th.*

**Acetate of Lime—**
U. States, 1,482 pkgs. H. Wallace & Co.

**Acetic Acid—**
Holland, 119 pkgs. Beresford & Co.
" 17 Phillipps & Graves
" 104 A. & M. Zimmermann

**Acetone—**
Holland, 29 pkgs. A. & M. Zimmermann

**Ammonia—**
Belgium, 50 pkgs. H. Lorenz

**Ammonium Chloride—**
Germany, 918 pkgs. Anglo-Contl. G. Wks.

**Antimony—**
Austria, 30 t. Bolling & Lowe
Germany, 4 H. Bath & Son
France, 113 Novelli & Co.
Spain, 20 H. R. Merton & Co.

**Asbestos—**
Italy, £100 W. Byford
U. States, 45 "
Italy, 120 Brit. Asbestos Co.

**Barium Chloride—**
Germany, 23 pkgs. Petri Bros.

**Barytes—**
Holland, 46 cks. Magee, Taylor, & Co.
Germany, 4 G. Steinhoff
" 47 W. Harrison & Co.
" 2 brls. J. Dickinson & Co.
Holland, 44 cks. W. Fenton
Belgium, 21 W. Harrison & Co.

**Boracic Acid—**
Germany, 11 pkgs. L. & I. D. Jt. Co.

**Borax—**
Germany, 40 pkgs. F. Stahlschmidt & Co.
" 2 L. & I. D. Jt. Co.

**Bromine—**
Germany, 20 pkgs. A. & M. Zimmermann

**Caoutchouc—**
E. Indies, 35 c. L. & I. D. Jt. Co.
Spain, 93 Stiebel Bros.
France, 20 Lewis & Peat
Penang, 19 Prop. Bull Wf.
Madagascar, 18 Proctor Bros.
" 50 McKellar, Carr, & Co.
" 33 S. Figgis & Co.
Zanzibar, 38 Anderson, Weber, & Smith
E. Indies, 313 Ross & Deering
Germany, 12 J. J. Massingham
Madagascar, 10 Gellatly, Hankey, & Co.
E. Indies, 83 Raffi Bros.
Singapore, 17 L. & I. D. Jt. Co.
E. Indies, 30 Lewis & Peat
Uruguay, 72 "

**Carbolic Acid—**
Holland, 21 pkgs. Volcanic Eration Co.

**Caustic Potash—**
France, 200 c. H. Briscoe
" 200 F. W. Berk & Co., Ltd.

**Chemicals** (*otherwise undescribed*)
Germany, £12 Beresford & Co.
" 7 Becker & Urich
" 33 pkgs. T. H. Lee
" 53 A. & M. Zimmermann
N. Zealand, 8 W. A. Sparrow
Holland, 5 Phillipps & Graves
Germany, 18 Typke & King
Holland, 8 R. Morrison & Co.

**Chloride of Sulphur—**
Germany, 10 pkgs. Typke & King

**Cream of Tartar—**
Italy, 20 pkgs. B. Jacob & Sons
" 2 Italo-Brit S. N. Co.
" 3 W. C. Bacon & Co.
Spain, 5 "
" 10 C. Christopherson & Co.
Holland, 13 B. & F. Wf. Co., Ltd.
France, 11 "
" 5 J. Puddy & Co.
" 10 W. C. Bacon & Co.
Adelaide, 5 Lewis & Peat
Spain, 8 B. & F. Wf. Co., Ltd.
France, 2 J. Atkins
Holland, 70 Middleton & Co.
France, 2 Ross & Deering

**Dyestuffs—**
**Aniline**
Holland, 14 pkgs. Elkan & Co.
**Argols**
Italy, 398 pkgs. B. Jacob & Sons
" 33 Thames S. T. & L. Co., Ltd.
France, 320 T. Trapp & Sons
**Cutch**
Rangoon, 237 pkgs. H. A. Litchfield & Co.
**Extracts**
France, 50 pkgs. Prop. Chmbln.'s Wf.
" 250 L. J. Levinstein & Sons
" 55 B. & F. Wf. Co., Ltd.
Denmark, 16 Bailey & Leetham
**Gambier**
Singapore, 253 pkgs. Elkan & Co.
" 273 Evans & Co.
" 428 Beresford & Co.
" 246 E. Boustead & Co.
**Indigo**
E. Indies, 6 chts. Benecke, Souchay, & Co.
" 4 Ripley, Roberts, & Co.
" 44 R. von Glehn & Sons
" 11 Arbuthnot, Latham, & Co.
" 28 W. Brandts, Son, & Co.
" 58 L. & I. D. Jt. Co.
**Naphthalene**
Germany, 14 pkgs. Fleming's Oil Co., Ltd.
**Sumac**
Italy, 500 pkgs. S. Barrow & Bros., Ltd.
" 500 Beresford & Co.
" 500 J. Kitchin, Ltd.
" 150 Vokins & Co., Ltd.
" 500 Brown & Elmslie
**Tanners' Bark**
Auckland, 32 t. Beresford & Co.
Melbourne, 8 Anning & Cobb
U. States, 30 H. Kellinstamm
Melbourne, 95 Flack, Chandler, & Co.
" 2 Devitt & Hett
" 228 N. Z. L. & M. A. Co., Ltd.
Natal, 83 A. & W. Nesbitt
Melbourne, 102 Baxter & Hoar
Natal, 2 R. G. Hall & Co.
U. States, 8 Park, Macfadyen, & Co.
Adelaide, 47 Goad, Rigg, & Co.
**Turmeric**
E. Indies, 10 pkgs. Co-op. L. Association, Ltd.
Belgium, 98 Beresford & Co.
Hong Kong, 128 B. & N. Wf. Co., Ltd.
China, 200 Prop. Bull Wf.

**Dyestuffs** (*otherwise undescribed*)
U. States, 3 pkgs. W. W. Young

**Farina—**
Holland, 50 pkgs. J. Knill & Co.
" 200 R. G. Hall & Co.
Singapore, 1,635 A. B. Curtis & Co.

**Gamboge—**
Singapore, 20 cs. L. & I. D. Jt. Co.
Saigon, 8 "

**Glucose—**
U. States, 1,500 pkgs. 2,065 c. R. G. Hall & Co.
" 10 110 c. H. Johnson & Sons
" 370 920 Soundy & Sons
" 50 297 Prop. Chmbln.'s Wf.
" 250 250 J. Barber & Co.
" 400 400 Devitt & Hett
" 500 500 Barrett, Tagant, & Co.
" 1,300 1,300 L. Sutro & Co.
" 500 500 Fellows, Morton, & Co.
" 350 1,920 Union L. Co., Ltd.
France, 420 420 J. Barber & Co.
" 250 250 Barrett, Tagant, & Co.
Holland, 100 100 Fellows, Morton, & Co.

**Glycerine—**
France, £351 G. Ward & Sons
Germany, 25 T. H. Lee
Holland, 180 J. Owen
Germany, 25 H. Lambert
" 95 Beresford & Co.
Holland, 380 Spies Bros. & Co.

**Guano—**
Holland, 30 t. Union L. Co., Ltd.

**Lead Acetate—**
France, 10 pkgs. F. Smith
Germany, 8 Petri Bros.
" 15 F. Bochm

**Manure—**
Sweden, 5 t. M. D. Co.
Germany, 20 F. W. Berk & Co., Ltd.
Holland, 75 D. de pass & Co.

**Methyl Alcohol—**
U. States, 75 drs. C. Webster
Germany, 10 brls. Lister & Biggs
Belgium, 27 Stein Bros.

**Mica—**
E. Indies, £473 Arbuthnot, Latham, & Co.

**Ochre—**
France, 277 bgs. Brougham Young
" 81 cks. W. Harrison & Co.
" 31 pkgs. R. Warner & Co., Ltd.
Holland, 1 - 92 cs. Phillipps & Graves
France, 9 cks. Hemingway & Co.

**Oxalic Acid—**
Holland, 20 pkgs. G. Rahn & Co.

**Painters' Colours—**
Germany, 19 pkgs. L. & I. D. Jt. Co.
" 5 Phillipps & Graves
Norway, 79 J. B. Orr & Co.
Germany, 10 Craven & Co.
" 32 T. Hamilton
France, 15 Flageollet & Co.
Belgium, 8 T. Palmer
" 6 Union L. Co., Ltd.
" 12 cks. Magee, Taylor, & Co.
U. States, 4 Beck & Pollitzer
" 3 L. & I. D. Jt. Co.
Holland, 5 Haeffner, Hilpert, & Co.
Germany, 17 T. H. Lee
" 29 Squire & Smith
France, 189 W. Harrison & Co.

**Phosphate Rock—**
Belgium, 196 Lawes Manure Co., Ltd.
France, 407 Anglo Contl. G. Wks.
Canada, 300 A. Hunter & Co.
Holland, 270 Anglo Contl. G. Wks.

**Plumbago—**
Germany, 147 cks. B. Gallaway
Italy, 100 Italo-Brit S. N. Co.
Holland, 12 B. Gallaway
Ceylon, 355 J. Thredder, Son, & Co.
Germany, 10 75 cs. T. H. Lee

**Potash—**
Germany, 36 pkgs. L. & I. D. Jt. Co.
France, 220 c. Petri Bros.

**Potassium Carbonate—**
France, 200 c. Charles & Fox
" 50 Petri Bros.
Germany, 28 cks. Beresford & Co

**Potassium Oxymuriate—**
Belgium, 25 pkgs. G. Boor & Co.

**Potassium Permanganate—**
Germany, 12 pkgs. G. Boor & Co.

**Potassium Sulphate—**
France, 40 cks. Weatherley, Mead, & Co.

**Pyrites—**
Spain, 3,026 c. Tennant, Sons, & Co.

**Rosin—**
U. States, 550 brls. Moore & Hole
" 500 G. Nutter & Co.

**Salt etre—**
Taltal, 8,974 bgs. W. Montgomery & Co.
E. Indies, 1,268 E. D. Sasson & Co.
Germany, 5 cks. Craven & Co.
E. Indies, 1,246 bgs. L. & I. D. Jt. Co.

**Soda—**
Holland, 230 c. Beresford & Co.
" 100 J. Owen

**Sodium Acetate—**
France, 80 pkgs. T. Palmer
" 21 McDougall & Co.

**Sodium Hyposulphite—**
Holland, 120 pkgs. R. W. Greeff & Co.

**Sodium Nitrate—**
Germany, 1 pkg. Fletcher & Co.

**Stearine**—
France, 180 bgs. G. Boor & Co.
Belgium, 20 W. Meverstein & Co.
France, 100 H. Hill & Sons
Belgium, 39 ,,
France, 408 Beresford & Co.

**Sulphur**—
Italy, 200 t. Johnson & Hooper
,, 150 A. Hughes
,, 200 Brandram Bros. & Co.
,, 10 Candery & Co.
,, 300 W. C. Bacon & Co.
,, 25 F. Smith
,, 60 J. Kitchin, Ltd.
,, 35 C. J. Capes & Co.
,, 3 R. Morrison & Co.

**Talc**—
Italy, £80 Davies, Turner, & Co.
E. Indies, 150 W. M. Smith & Sons
Italy, 105 Brit Asbestos Co.

**Tallow**—
Melbourne, 133 cks. W. Pope & Co.
,, 197 Ross & Deering
,, 562 Produce Brokers Co.
,, 2 J. Morrison & Co.
,, 1,059 Elkan & Co.
,, 174 D. C. Thomas & Sons
,, 359 A. B. Curtis & Co.
Sydney, 51 ,,
,, 187 Elkan & Co.
,, 210 A. G. Anderson
,, 158 Dalgety & Co.
N. Zealand, 192 Flack, Chandler, & Co.
,, 29 Cuthbert & Hall
,, 43 Brown & Elmslie
Melbourne, 266 Kaul & Haenlein
,, 156 Baxter & Hoare
Germany, 70 C. B. Leighton
N. S. W., 105 Nelson Bros.
P. Arenas, 2 Dyster, Nalder, & Co.
N. Zealand, 68 J. Morrison & Co.
,, 721 Nelson Bros.
,, 125 N. M. & A. Co. of N.Z.
,, 60 Dalgety & Co., Ltd.
Melbourne, 212 J. Greig
,, 896 J. Owen
Queensland, 35 Dalgety & Co., Ltd.
,, 716 Goldsbrough, Mort, & Co.
N. Zealand, 147 A. Tremearne & Co.
Queensland, 5 Dyster, Nalder, & Co.
Melbourne, 217 Goldsbrough, Mort, & Co.
N. Zealand, 6 Hoare, Wilson. & Co.
,, 499 Gear Meat Presv'g. Co.
,, 324 N. Z. L. & M. A. Co.
,, 88 Hicks, Nash, & Co.
Queensland, 59 Low, Sons, & Bedford
,, 33 D. J. Keymer & Co.
,, 11 Coml. Banking Co. of Sydney
,, 40 Australian Meat Co.
Sydney, 28 ,,
,, 200 J. Greig
Belgium, 12 H. Hill & Sons

**Tallow and Stearine**—
Belgium, 4 cks. Leach & Co.
U. States, 20 Chesebrough Mfg. Co.

**Tar**—
Germany, 100 brls. Linck, Moeller & Co.

**Tartaric Acid**—
Holland, 9 pkgs. J. Owen
,, 50 Middleton & Co.

**Turpentine**—
B.W.I., 1,620 brls. H. Funck & Co.
Savannah, 1,648 Nickoll & Knight

**Ultramarine**—
Holland, 8 pkgs. C. J. Capes & Co.
Belgium, 12 W. Harrison & Co.
Holland, 36 Thames S. T. & L. Co., Ld.
,, 30 cs. Hernu, Peron, & Co.
Germany, 20 8 cks. G. Steinhoff
Holland, 2 pkgs. Phillipps & Graves

**Varnish**—
Belgium, 6 pkgs. B. Young
U. States, 33 Beck & Pollitzer
,, 77 Pinchin, Johnson & Co.
,, 10 Dawson Bros.

**Vermilion**—
Hong Kong, 10 cs. Blundell, Spence & Co.

**White Lead**—
Germany, 20 cks. Randall Bros.
Belgium, 1 Leach & Co.
Holland, 4 Stobbs, Wilson & Co.
,, 46 Magee, Taylor, & Co.
Germany, 20 Colthurst & Harding
,, 22 M. Ashby, Ld.
Holland, 4 pkgs. Societe Maritime Belge
Belgium, 20 cks. Colthurst & Harding

**Zinc Oxide**—
Holland, 200 brls. 150 pkgs. M. Ashby, Ld.
,, 25 Burrell & Co.
Germany, 23 cks. J. Matton

## LIVERPOOL.

*Week ending July 7th.*

**Acetic Acid**—
Rotterdam, 10 botls.

**Antimony**—
Smyrna, 992 bgs. A. Sparrow & Co.

**Antimony Salts**—
In transit, 10 kgs.

**Barytes**—
Antwerp, 32 cks.

**Colours**—
Antwerp, 14 brls. J. T. Fletcher & Co.
Rotterdam, 19 cks.

**Cream of Tartar**—
Barcelona, 5 cks.
Rotterdam, 3

**Dyestuffs**—
**Annatto**
Bordeaux, 9 cks.
**Argols**
Bordeaux, 46 cks.
**Cochineal**
Grand Canary, 5 bgs. Kolp & Co.
**Divi Divi**
Hamburg, 129 bgs.
**Extracts**
Antwerp, 10 cks. J. T. Fletcher & Co.
,, 50 brls.
New York, 75 bxs. B. Wilkinson & Co.
,, 11 cks. Langstaffe & Co.
Bordeaux, 150
**Gambier**
Singapore, 1,636 bls.
**Saffron**
Valencia, 1 cs.
**Shumac**
Barcelona, 60 bgs. A. Ruffer & Sons
,, 50
**Tannin**
Hamburg, 2 cks.

**Glucose**—
New York, 300 brls.

**Glycerine**—
Rotterdam, 1 cs. 4 tins.

**Manganese**—
Coquimbo, 760 t.
Bordeaux, 201 R. J. Francis & Co.

**Nitrate**—
Valparaiso, 1 cs. E. Koergel
Rotterdam, 8 cks.

**Ochre**—
Bordeaux, 44 cks.
Rouen, 14
Marseilles, 48

**Phosphate**—
Montreal, 502 t. Phosphate Guano Co.

**Pitch**—
Marseilles, 25 cks.

**Plumbago**—
Hamburg, 14 cks.

**Potash**—
Montreal, 21 brls.

**Potassium Prussiate**—
Rotterdam, 11 cks.

**Pyrites**—
Huelva, 3,944 t. Matheson & Co.

**Rosin**—
Baltimore, 500 brls. Paterson, Downing & Co.
,, 500
Hamburg, 20 cs. 40 bgs.

**Salt**—
Hamburg, 170 t.

**Soap**—
In transit, 1 cs.
Rotterdam, 10
Marseilles, 56 75 bxs.

**Sodium Nitrate**—
Iquique, 23,625 bgs.

**Stearine**—
Antwerp, 52 bgs.
New York, 20 hds.

**Sulphur**—
Huelva, 1,443 t. Matheson & Co.

**Tallow**—
Paysandu, 877 pps. 194½ pps.
New York, 150 hds. 60 tcs.
Baltimore, 30
Punta Arenas, 2 bls. J. Hoare & Co
Philadelphia, 110 tcs. Richardson, Spence & Co.
,, 187 62 hds.
Norfolk, Va., 57 brls.
Rouen, 17 cks.

**Tar**—
Marseilles, 50 cks.

**Tartar**—
Bordeaux, 13 cks.

**Tartaric Acid**—
Rotterdam, 10 cks.

**Tin Chloride**—
Antwerp, 8 cks. J. T. Fletcher & Co.

**Tin Oxalate**—
Rotterdam, 2 cs.

**Ultramarine**—
In transit, 90 cks. 20 cs.
Rotterdam, 18 14

**Varnish**—
Havre, 1 cs. Cunard S. S. Co., Ld.

**Verdigris**—
Bordeaux, 5 cks.
Marseilles, 15 cs.

**White Lead**—
Rotterdam, 118 cks.

**Zinc Ashes**—
Boston, 66 brls. E. M. Moers & Sons

**Zinc Oxide**—
Antwerp, 100 brls.

**Zinc White**—
Rotterdam, 30 cks. O. & H. Marcus

## GLASGOW.

*Week ending July 14th.*

**Acetate of Lime**—
New York 1,295 bgs.

**Barytes**—
Rotterdam, 46 cks.
,, 69 J. Rankine & Son

**Barytes Sulphate**—
Antwerp, 21 cks.

**Colours**—
Rotterdam, 25 cks. G. & J. Boyd
Antwerp, 3 css. 7

**Dyestuffs**—
**Alizarine**
Rotterdam, 1 bx. 128 brls. J. Rankine & Son
**Aniline Colours**
Rotterdam, 1 ck. 5 brls. 5 bxs. J. Rankine & Son
**Extracts**
New York, 50 bxs. 10 brls.
**Indigo**
Amsterdam, 11 chts.
Rotterdam, 11 J. Rankine & Son

**Glucose**—
New York, 50 brls.

**Glycerine**—
Rotterdam, 1 ck. 1 cs. 4 tins J. Rankine & Son

**Phosphate Rock**—
Port Royal, 3,115 t. Alex. Cross & Sons

**Rosin**—
New York, 1,418 brls.
,, 410 J. Kennedy & Co.
Baltimore, 85 W. N. Gemmel & Co.

**Soap**—
Antwerp, 1 cs.

**Sulphite Pulp**—
Ronneby, 977 bls.

**Sulphur**—
Rouen, 1 cs.

**Tallow**—
New York, 20 hds. 65 tcs.

**Tartar**—
Bordeaux, 8 cks.

**Varnish**—
New York, 27 brls.

**Waste Salt**—
Hamburg, 360 t.

**White Lead**—
Rotterdam, 27 cks. J. Rankine & Son

**Zinc Ashes**—
Antwerp, 8 cks.

**Zinc Oxide**—
Antwerp, 25 cks.
New York, 200 brls.

**Zinc Sulphate**—
Rotterdam, 5 brls. J. Ru

## HULL.

*Week ending July 9th.*

**Alkali**—
Bremen, 3 cs. 1 kg. Vehr

**Arsenic**—
Hamburg, 25 brls. Wilson, S Co.

**Barytes**—
Antwerp, 105 cks. 60 bgs. Ba Le
Bremen, 24 Veltmann
,, 21 Blundell, Sp
,, 46 H. F.

**Carbolic Acid**—
Rotterdam, 50 cks. Wilson, C

**Chemicals** (*otherwise undes*
Bremen, 2 cs. 4 cks. Vehr
,, 2 J. Fy
Dunkirk, 79 pks. Wilson, C
Antwerp, 53 ,,
Hamburg, 250 bgs. ,,

**Colours**—
Antwerp, 50 cks. 54 bgs. L
,, 6 cs. G.
Rotterdam, 6 Hutch
Ghent, 11
Bremen, 1 1 Veltma
,, 2 H. T. G
,, 4 4 G. M
Rotterdam, 12 G. L
,, 4 Lof
Flushing, 114 10 Zeel
Antwerp, 87
Rotterdam, 2 45 & C. L.

**Dyestuffs**—
**Alizarine**
Rotterdam, 33 cks. 22 pks. L.
**Aniline**
Flushing, 5 cks. 1 cs. Zeel
**Indigo**
Amsterdam, 7 cks. W.
**Madder**
Rotterdam, 3 cks. G. L
,, 1 cs. 4 Wilson

**Farina**—
Ghent, 160 bxs. Wilson, S

**Glucose**—
New York, 130 brls.

**Ochre**—
Rouen, 25 cks. Rawson &

**Paint**—
Rotterdam, 17 dms. G. D

New York, 14 cs. 3 brls. Wilso

**Phosphate**—
Montreal, 150 t.

**Phosphate Rock**—
Beaufort, 2,098 t.

**Potash**—
Rotterdam, 61 cks. G.
,, 7 G. H.

**Rosin**—
Charleston, 3,300 brls.

**Soap**—
S. Petersburg, 10 cs. Wil
New York, 513 pkgs.

20 bgs. Wilson, Sons & Co., Ltd.
20 pks. "

30 hds. 50 trcs. Wilson, Sons & Co., Ltd.

2 brls. Wilson, Sons & Co., Ltd.
7 cks.

**icid—**
4 cks. G. Lawson & Sons

**e—**
200 brls.

**ne—**
8 cks. Hanger, Watson, Harris
4 Storry, Smithson & Co.
9

**ad—**
35 cks. Bailey & Leetham
9 F. Fewster & Son

## TYNE.

*Week ending July 9th.*

**Alum—**
Rotterdam, 2 cks. T. S. S. Co.

**Alum Earth—**
Hamburg, 18 cks. T. S. S. Co.

**Ammonia—**
Antwerp, 2 brls. T. S. S. Co.

**Barytes—**
Rotterdam, 68 cks. T. S. S. Co.
Hamburg, 1 bg. "

**Colours—**
Rotterdam, 3 cks. T. S. S. Co.

**Phosphate—**
Antwerp, 170 t. Langdale's Chemical Manure Co.
" 300 bgs. T. S. S. Co.

**Plumbago—**
Antwerp, 5 bgs. T. S. S. Co.

**Potash—**
Hamburg, 12 cks. T. S. S. Co.

**Rosin—**
Savannah ,3,400 brl .

**Salt—**
Hamburg, 330 t. Clephen & Wiencke
Harburg, 200 t.

**Stearine—**
Antwerp, 13 bgs. T. S. S. Co.

**Tallow—**
Hamburg, 6 cks. T. S. S. Co.

**Turpentine—**
Savannah, 213 brls.

**Ultramarine—**
Rotterdam, 6 cks. T. S S. Co.

## GOOLE.

*Week ending June 22nd.*

**Antimony—**
Boulogne, 3 cks.

**Caoutchouc—**
Boulogne, 1 cs. 1 ck.

**Dyestuffs—**
**Extracts**
Rouen, 101 cks.
Dunkirk 5
**Fustic**
Jamaica, 238 t.

**Dyestuffs** (*otherwise undescribed.*)
Boulogne, 14 pkgs. 18 cks. 6 cs.

**Phosphate—**
Ghent, 816 bgs.

**Potash—**
Dunkirk, 25 cks.
Calais, 45 dms.

**Potassium Carbonate—**
Hamburg, 5 cks.

**Pyrites—**
Seville, 700 t.

**Saltpetre—**
Rotterdam, 100 bgs.
Hamburg, 4 brls.

**Waste Salt—**
Hamburg, 480 cks. 509 bgs.

## GRIMSBY.

*Week ending June 27th.*

**Caoutchouc—**
Hamburg, 2 bales

**Chemicals** (*otherwise undescribed*)
Hamburg, 26 pkgs.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## ONDON.

*ending July 13th.*

10 cs. £12
7 c. 24

2 t. 2 c. £8
B., 1 13 6

**Cake—**
35 t. £123

**n Carbonate—**
6 c. £12
10 19
2 t. 1 57

**n Chloride—**
16 cks. £87
5 c. 11
10
10 25
1 t. 19 65
3 18
ople, 1 2 35

**n Sulphate—**
13 t. 4 c. £144
4 13 49
61 640

1 t. £13

**trate—**
2 t. £39

**of Lime—**
2 t. 11 c. £25

eiro, 10 c. £14
3 t. 90
5 15

**cid—**
12 pkgs. £32
6 cks. 9
12 cs. 35
a, 11 c. 73
123 40 drs. 730
89 8 339

**da—**
10 t. 3 c. £119
4 9
5 10
5 10

*(otherwise undescribed)*
2 drs. £11
1 ck. 6 cs. 28
3 62
20 15
kgs. 10
1 10

Cape Town, 2 pkgs. 10
Stockholm, 2 brls. 19
Oporto, 10 c. 36
Adelaide, 51 125 drs. 2 109

**Calcium Chloride and Carbonic Anhydride Gas—**
Sydney, 1 t. 19 c. £55

**Critric Acid—**
Bombay, 3 c. £25
Algoa Bay, 1 8
Rotterdam, 7 56
Hamburg, 1 t. 5 4 cks. 359
St. Petersburg, 1 kg. 8
Seville, 10 80

**Coal Products—**
**Alizarine**
Boston, 25 cks. £380
**Aniline**
New York, 20 cks. £150
Melbourne, 1 cs. 13
St. Petersburg, 2 37
**Aniline Oil**
Dunkirk, 5 drs. £180
Rotterdam, 24 825
**Anthracene**
Rotterdam, 53 cks.
**Benzol**
Rotterdam, 88 cks. 36 drs. £1,156
Hamburg, 15 195
**Coal Tar Dyes**
Boston, 14 cks. £177
**Creosote**
New York, 2 cs. £23
B. Ayres, 1 15
Philadelphia, 13 cks. 125
**Naphthalene**
Hamburg, 116 pkgs. 6 cks. £149
Stettin, 100 bgs. 38
**Paraffin Wax**
Auckland, 3 tks. £137
Launceston, 30 bgs. 95
**Pitch**
Helsingfors, 75 t. £124
Boston, 720 cks. 387
Antwerp, 149 246
Alexandria, 200 brls. 65
New York, 324 bgs. 60
Dunkirk, 815 1,241
**Pyridine**
Calais, 1 ck. £11
**Tar**
Natal, 180 pkgs. £49
Dantzig, 300 brls. 140
Baltimore, 108 cks. 59
Stettin, 500 255
Helsingfors, 1,000 509
New York, 50 18
**Tar Oil**
Galveston, 3,000 brls, £1,088
**Toluol**
Rotterdam, 24 cks, £69

**Coal Products** (*otherwise undesc'd.*)
Batavia, 100 rnlts. £50

**Copperas—**
Madras, 8 t. 15 c. £18
Batoum, 10 152

**Copper Sulphate—**
Ghent, 8 t. £118
Odessa, 10 150
Rotterdam, 4 19 c. 75
Bordeaux, 20 320

**Cream of Tartar—**
Wellington, 12 c. £53
Cape Town, 4 23
Sydney, 1 t. 15 138
Launceston, 15 7
Melbourne, 1 90

**Disinfectants—**
Hamburg, 25 cks. £125
Calcutta, 17 pkgs. 15
Shanghai, 3 cs. £10
Cape Town, 10 drs. 20
Penang, 3 14

**Flowers of Sulphur—**
Oporto, 15 c. £9

**Glycerine—**
Adelaide, 1 t. £46
New York, 10 cs. 38

**Guano—**
Antigua, 4 t. 10 c. £52
Landerneau, 300 3,000

**Hypophosphite of Lime—**
Boston, 6 c. £110

**Hypophosphite of Soda—**
Boston, 4 c. £72

**Kainit—**
Auckland, 15 t. £50

**Manure—**
Lyttelton, 50 t. 675
Paris, 50 525
Hamburg, 354 3,717

**Muriatic Acid—**
Mauritius, 3 t. 12 c. £20

**Nitre Cake—**
Townsville, 16 t. 19 c. £46

**Nitric Acid—**
Madras, 16 c. £7

**Phosphorus—**
Blenheim, 4 cs. £47
Adelaide, 4 c. 50

**Potassium Bichromate—**
Keppel Bay, 7 c. £15

**Potassium Carbonate—**
Oporto, 9 c. £14

**Potassium Cyanide—**
Madras, 3 c. £18
Shanghai, 2 cs. 22
Yokohama, 5 26

**Saltpetre—**
Wellington, 10 c. £11
Rio de Janeiro, 1 t. 3 25
Sydney, 1 22
Bahia, 3 6 75
B. Ayres, 14 15
Launceston, 1 5 27
Keppel Bay, 1 22
Oporto, 6 2 133

**Sheep Dip—**
Sydney, 500 cs. £1,500
Launceston, 150 375

**Soda—**
Oporto, 10 c. £7

**Sodium Bicarbonate—**
Auckland, 2 t. £16
Hong Kong, 10 c. 5

**Sodium Hyposulphite—**
Calcutta, 7 t. 12 c. £61

**Sodium Silicate—**
Auckland, 2 t. 5 c. £10

**Strontia Nitrate—**
Bombay, 11 c. £17
New York, 7 t. 5 205

**Sulphur—**
Mauritius, 4 t. 10 c.

**Sulphuric Acid—**
Madras, 5 t. 5 c. £23

**Superphosphate of Lime—**
Reval, 48 t. 9 c. £140

**Tartaric Acid—**
Wellington, 2 c. £11
Auckland, 5 26
Bombay, 10 cs. 44
Algoa Bay, 2 13
Cape Town, 16 27
E. London, 2 14
Sydney, 5 29
M. Video, 2 cks. 51
Melbourne, 1 t. 112
Boulogne, 5 29
Hamburg, 1 30

## LIVERPOOL.

*Week ending July 13th.*

**Alum—**
Seville, 8 t. 2 q. £42
Barcelona, 5 12 1 27
Patras, 2 16 15
Malta, 2 7 11
Palermo, 1 5
Melbourne, 2 10
Calcutta, 9 14 98
Alexandretta, 3 15 23
Patras, 4 6 24
Melbourne, 2 10 15
Trebizonde, 1 18 11

**Alum Cake—**
Melbourne, 10 t. 3 c. £28

**Ammonium Carbonate—**
Hamburg, 15 c. 3 q. £24
Genoa, 10 14
Marseilles, 2 t. 2 1 62

**Ammonium Chloride—**
Piræus, 6 c. £10
Patras, 2 3 q. 5
Antwerp, 10 3 12
Philadelphia, 25 14 348

**Ammonium Sulphate—**
Demerara, 10 t. 11 c. £108
Odessa, 112 17 2 q. 1,147
Barcelona, 50 2 500
Genoa, 30 1 2 306
Gr. Canary, 4 18 2 41
N. York, 24 16 3 275

**Aniline Salt—**
New York, 8 cks.

**Bisulphite of Lead—**
Santos, 17 c. £17

**Bleaching Powder—**
Baltimore, 406 cks.
Boston, 85
Oporto, 5 brls.
Palermo, 5
Sherbrooke, 20
Batoum, 68
Boston, 99 519
Odessa, 69
Philadelphia, 58
Rio de Janeiro, 12

**Borate of L'me—**
Rotterdam, 9 t. 17 c. 2 q. £115

**Boracic Acid—**
Melbourne, 15 kgs. £29
Havre, 1 t. 1 c. 2 q. 43
Antwerp, 2 5 1 78

**Borax—**
Christiania, 3 cks. £24
Halifax, 1 11
Rotterdam, 16 40
Rosario, 1 t. 16 c. 23
Copenhagen, 6 35
Matanzas, 6 3 q. 10
Malta, 1 bx. 1
Ghent, 4 cks.
Havre, 3
Santiago, 10

**Carbolic Acid—**
Rotterdam, 2 c. £6
Antwerp, 24 17 888
N. York, 6 209

**Caustic Potash—**
Chicago, 3 t. 5 c. £105

**Caustic Soda—**
Alexandria, 10 dms. 1 ck.
Amsterdam, 47 15 brls. 20 kgs.
Bahia, 15 20
Bilbao, 12
Boston, 340 66 cks.
Naples, 35
New York, 200
Oporto, 10
Pernambuco, 25
Philadelphia, 24
Rio de Janeiro, 5 17 kgs
Rotterdam, 53 5
St. Petersburg, 177
Valencia, 40
Yokohama, 260
Halifax, 18
Hamburg, 200
Rangoon, 7
Rio Grande, 30
St. Petersburg, 340
Salonica, 20
San Sebastian, 20
Santos, 30
Seville, 35
Singapore, 30 tins.
Stockholm, 10
Talcahuano, 35
Yokohama, 14

**Chemicals** (*otherwise undescribed*)
Genoa, 2 t. £8
Alexandria, 1 32
Corfu, Patras, 5 c. 8
Odessa, 4 8 140
Palermo, 10 16
Antwerp, 10 17
Malta, 15 24
Beyrout, 1 t. 10 49
Yokohama, 10 cks. 27

**Citric Acid—**
Bermuda 1 c. £9
Santiago 6 8
Constantinople, 2 kgs. 17

**Colours—**
Leghorn, 4 cks.
Montreal, 3 cs. 118 kgs.
New York, 1 bx.

**Copperas—**
Montreal, 12 t. 2 c. £25
Santos, 23 cks. 7
Halifax, 15 brls. 6
Calcutta, 100 26

**Copper Sulphate—**
Boston, 1 t. 3 c. £19
Piræus, 19 15
Rosario, 9 10 140
Rouen, 33 503
Palermo, 7 17 118
Ghent, 14 19 1 q. 226
Bordeaux, 40 4 3 520
Rotterdam, 1 2 2 16
Rio de Janeiro, 3 6 50
Odessa, 15 1 224
Kurrachee, 10 8
Naples, 2 3 3 32
M. Video, 7 1 2 99
Montreal, 1 15
Marseilles, 110 6 2 1,700

**Cream of Tartar—**
Halifax, 1 ck. £47

**Disinfectants—**
Bombay, 36 cs. £73
Axim, 3 crts. 8
Calcutta, 3 cs. 11
Kurrachee, 12 c. 7

**Glycerine—**
Rotterdam, 18 t. 6 c. £476

**Gypsum—**
Montreal, 5 t. 8 c. 1 q. £23

**Manganese—**
New York, 143 cks.

**Magnesia—**
Havre, 160 cs.

**Magnesium—**
Bombay, 10 dms.

**Mangnesium Carbonate—**
Teneriffe, 4 cks.

**Manure—**
Port Louis, 50 t. £550

**Muriatic Acid—**
Trinidad, 2 c. £5
Santos, 12 cs. 15

**Ochre—**
East London, 20 brls. 30 dms.

**Oxalic Acid—**
Barcelona, 8 t. 9 c. 3 q. £232

**Paint—**
Algoa Bay, 2 cks.
Amsterdam, 6 kgs. 5 dms.
Antwerp, 30
Bahia, 20 brls.
Belize, 110
Bilbao, 4 6
B. Ayres, 297 58 226 30 cs. 200
Capetown, 3
Cienfuegos, 4
Guayaquil, 2 cs.
Kingston, 250
Kerasunde, 30
Lisbon, 47 5
Madras, 40
Malta, 1
Manilla, 3
Mollendo, 2
Oporto, 10 3
Para. 10 125 1 30 brls.
Philadelphia, 25
Port Natal, 900
Rio Grande, 5
Rosario, 2
Rotterdam, 1 brl. 1 22 100 bgs.
St. John's, Nfld, 3 30
Salaora, 2 brls.
Sandy Point, 23 pkgs.
San Juan, 1 brl. 50
Santa Cruz, 32
Savanilla, 70
Vera Cruz, 200
Wellington, 120 8 tcs.
Constantinople, 1
Gibraltar, 2 48
La Plata, 56 pkgs.
Odessa, 117
Pernambuco, 5
Ponce, 2
Rio de Janeiro, 150 5
Rosario, 2 4
Rouen, 20
Sagua la Grande, 9 tcs.
Seville, 3 brls.
Sierra Leone, 6 9 dms.
Talcahuano, 25 cs.
Trinidad, 5
Valparaiso, 52 72 584 261

**Painters' Colours—**
Corfu, 12 cks.
Halifax, 12
Maceio, 22 cs.
Marseilles, 165 bgs. 100 kgs. 36 brls.
Montreal, 250 cks.
Nassau, 90 2
Natal, 30 cs.
New York, 4 324 30 150
Akassa, 30 1 bx.
Antofagasta, 468 dms. 32 cs.
Antwerp, 5 brls.
Bahia, 2 bxs. 40
Belize, 10 cks. 339
Bombay, 548
Braila, 4 tcs.
Brass, 7 brls.
Cabenda, 10
Callao, 66 pkgs. 3 crts. 101
Capetown, 1 ck.
Guantavana, 12 brls. 2
Hamburg, 70 bgs.
Havana, 1 brl.
Iquique, 11
Malaga, 2
Mollendo, 38 pkgs.
Monte Video, 6

**Pitch—**
Cette, 1,506 t.
Valparaiso, 400 brls.

**Potassium Bichromate—**
Piræus, 9 c. £20

**Potassium Carbonate—**
Chicago, 1 t. 7 c. £43

**Potassium Chlorate—**
New York, 15 t. £691
Sydney, 10 455
Antwerp, 3 140
Oporto, 5 c. 16
Hamburg, 5 13
Genoa, 2 5 109
St. Petersburg, 2 10 117
Rotterdam, 1 47

**Regulus Antimony—**
Gijon, 3 c. 3 q. £12

**Salt—**
Adelaide, 41 c.
Amsterdam, 518 t.
Antofagasta, 8
Bakana, 18¾
Belize, 6
Benin, 35¾
Boston, 466
Calcutta, 3,844
Coquimbo, 2,800 sks.
East London, 575
Gibraltar, 20 bgs.
Halifax, 200
Montreal, 1,375
Natal, 380
N. York, 134 cs. 50 2,599 sks.
Port Natal, 380
Rio de Janeiro, 16
Trinidad, 40½
Antwerp, 80
Baltimore, 104½
C. C. Castle, 1,000 bgs.
Christiania, 335 t. 200 sks.
Ghent, 160
Manaos, 10
M. Video, 100 cs.
Newport News, 3,100
Oporto, 75
Rosario, 27 t. 17 c.
Rouen, 10
San Francisco, 30
Talcahuano, 1 1 20 cs.
Valparaiso, 8
Wellington, 10

**Salt Cake—**
Baltimore, 48 t. 4 c. £112
Oporto, 5 cks.

**Saltpetre—**
Syra, 3 t. 16 c. £78
Rio de Janeiro, 17 2 q. 20
Savanilla, 14 1 20
Para, 10 12
Port Natal, 10 11
Santiago, 5 6
Maceio, 12 1 14

**Sheep Dip—**
B. Ayres, 5 t. 13 c. £175
Belize, 5 11
Punta Arenas, 18 cks. 102
M. Video, 4 12 160

**Soap—**
Alexandria, 10 cks. 20 cs. 1,311 bxs.
Algoa Bay, 18
C. C. Castle, 30 bxs. 2
East London, 500 2
Hamburg, 190 dms.
Jersey, 14
Lagos, 450
Malta, 25
Montreal, 259
New York, 84 71
Port Natal, 200
Rotterdam, 290
Sandy Point, 12
Singapore, 325
Smyrna, 4
Sydney,
Torongo, 500
Valparaiso, 271 12
Accra, 60
Antofagasta, 14
Antwerp, 400
Barbadoes, 300
Belize, 300
Benin, 300
Bombay, 1,096
Boston, 2 cks.
Brass, 100
Buenos Ayres, 2
Calcutta, 185
Capetown, 500
Coquimbo, 1
Elmina, 20
Genoa, 30 27
Gibraltar, 478
Grand Bassa,
,, Canary, 430
Hong Kong, 150 33
Lisbon,
Mayaquez, 25
Natal, 3,572
Opobo, 50
Penang, 4
Philadelphia, 50
Piræus, 6
St. John's, Nfld, 10
St. Lucia, 50
Saltpond, 100
Savanilla, 6
Shanghai, 3,488
Tangiers, 45
Warre, 150

**Soapstone—**
Bombay, 20 bgs.

**Soda—**
Antwerp, 70 cks. 90 kgs.
Baltimore, 232 280 brls.
Bordeaux, 45 kgs.
Calcutta, 20
Callao, 15
Capetown, 3
Chicago,
Coquimbo,
Galatz, 7 24 brls.
Genoa, 10
Lisbon, 48
Malta,
Monte Video, 107 kgs.
Montreal, 81
Bahia, 15
Barcelona, 30
Batoum, 30
Boston, 20 84
Cartagena, 30 30
Cienfuegos,
Cincinatti,
Constantinople, 20 10
Corunna, 20
Fiume,
Forrifos,
Genoa,
Halifax, 100 81
Hamburg,
Havana, 36
Jerusalem, 6
Leghorn, 25
Malaga, 27
Melbourne,
New York,

**Soda Ash—**
New York, 400 bgs. 679
Piræus, 10 brls.
Baltimore, 82
Calcutta, 40 50
Dunda, 12
Hamburg, 25
Kingston,
Montreal, 33
Philadelphia, 253
Rio de Janeiro, 100 30
Seville, 7

**Soda Crystals—**
Alexandria, 23 brls.
Bombay, 37 10
New York, 196 5
Salonica, 7
Smyrna, 200
Sydney, 167
Varna, 10
Venice, 20
Halifax, 20
Kingston, 100

40
14
ia, 167
eiro, 10
Nfld., 10

**rseniate—**
1 t. 6 c. £15
1 15 28

**lborate—**
, 10 c. £15
1 t. 30
5 3 q. 153
75 pkgs.

**lcarbonate—**
100 kgs.
en, 70 29 cks.
10
120 6
, 396
20
urg, 100
20
20
50
, 7
iople, 10
20
50
leo, 21 1 cs.
376
264
10
50
200
Nfld., 20
14
20

**arbonate—**
, 50 brls.
, 56

**hlorate—**
40 kgs.
, 180
urg, 90 10 cks.

**lyposulphite—**
4 t. 10 c. 3 q. £21

**litrate—**
3 t. 16 c. £32
1 4 1 q. 10
2 11 3 20

**illicate—**
50 brls.
5
, 10 kgs.
34 cks.
tian, 17
35 dms.

**ulphate—**
17 t. 19 c. £54
5 2

20 t. 3 c. £111
, 50 9 2 q. 300
45 1 6 274
668 bgs. 520

**Acid—**
25 cks. £44
9 c. 5

23 kgs.
3 crts.
3
22 cks.
2

**cid—**
5 c. £25

2 cks.
, 150 dms.
10 brls.
me, 13

**ne—**
5 dms.

**line—**
6 pkgs.

3 cs. 4 cks.
leo, 1

**ride—**
24 t. 15 c. 4 q. £375

## LASGOW.

*ending July 14th.*

**m Sulphate—**
, 10 t. £102

50 brls. 27 pns. £470
, 22 dms. 30 440

**Bichrome—**
Christiania, 3 cks. £45
Quebec, 17 t. 11½ c. 542
Italy, 9 15¼ 317
Antwerp, 40 7¼ 1,340

**Cobalt Matte—**
Rotterdam, 11 t. £660

**Copperas—**
Antwerp, 7 t. 10¾ c. £90

**Creosote—**
Gothenburg, 4 t. 7½ c. £51

**Creosote Oil—**
Boston, 42 t. 14 c. £118

**Indigo Extract—**
New York, £120

**Linseed Oil—**
Montreal, 6 t. 1 c. £130
Morahu, 1 4 22

**Magnesium Sulphate**
Calcutta, 8 ts. £28. 10s.

**Paint—**
New York, £40

**Painters' Colours—**
Calcutta, 5 t. 8 c. £50
Singapore, 9 120

**Paraffin Wax—**
Japan, 38 t. 12¾ c. £906
Nantes, 1 3¼ 35
Gothenburg, 1 14 34
Italy, 10 2 315

**Pitch—**
Boston, 20 t. 14 c. £65

**Rosin—**
Bombay, 59 t. 16 c. £336

**Rosin Oil—**
Rotterdam, 30 brls. £58. 18s.
Italy, 2 t. 3 c. £24

**Salt Cake—**
Antwerp, 26 t. 8 q. 1 lb. £520

**Soap—**
Bombay, 1 t. 19 c. £23
Rotterdam, 4 dms. 28

**Sodium Bichromate—**
Gothenburg, 1 t. 9 c. £50
Rotterdam, 50 cks. 594
Italy, 46 18½ 1,700

**Tallow—**
Rotterdam, 4 t. 13¾ c. £169. 13s.
Morahu, 230 7,580

**Tar—**
Colombo, £22
Bombay, 21
Christiania, 20 brls. 10
Riga, 200 120

**White Lead—**
Montreal, 13 t. 14½ c. £237

## HULL.

*Week ending July 9th.*

**Bleaching Powder—**
Harlingen, 24 cks.
Stettin, 53

**Borax—**
Amsterdam, 5 cks.

**Caustic Soda—**
Abo, 3 cks.
Stettin, 35 dms.

**Chemicals** *(otherwise undescribed)*
Antwerp, 1 cs.
Bremen, 2 cks.
Copenhagen, 3 6 pks.
Christiania, 13 486 slbs.
Flushing, 20
Gothenburg, 22 655
Helsingfors, 1 20
Hamburg, 99 28
Harlingen, 10
Libau, 7 107 kgs
Marseilles, 8
Rotterdam, 40
St. Petersburg, 100
Stettin, 5 35 pkgs.

**Cottonseed Oil—**
Antwerp 770 c.
Amsterdam, 99
Bergen, 41
Copenhagen, 102
Flushing, 120
Gothenburg, 70
Hamburg, 1,459
Norrkoping, 119
Rotterdam, 976
Stockholm, 101

**Creosote—**
Gothenburg, 199 cks.

**Dyestuffs** *(otherwise undescribed)*
Boston, 15 cks.
Christiania, 100 bgs.
Rouen, 10
Rotterdam, 3 kgs.
St. Petersburg, 5 2
Stettin, 202

**Farina—**
Dunkirk, 10 bls.
Rotterdam, 8 cks.

**Linseed Oil—**
Abo, 146 c.
Bergen, 186
Boston, 139
Copenhagen, 23
Christiania, 519
Drontheim, 128
Genoa, 20
Hamburg, 309
Rotterdam, 593
Stavanger, 91

**Manganese—**
St. Petersburg, 307 cks.

**Manure—**
Genoa, 290 bgs.
Hamburg, 2,366

**Mineral White—**
Genoa, 300 bgs.

**Naphtha—**
Flushing, 5 cks.

**Ochre—**
Antwerp, 6 cks.
Amsterdam, 31
Rotterdam, 3

**Painters' Colours—**
Antwerp, 3 cs. 58 cks. 157 kgs.
" 225 dms.
Amsterdam, 3 11
Bergen, 2 107
Boston, 18 2 200
Copenhagen, 13
Christiania, 1 43 pks.
Drontheim, 30 160
Dunkirk, 18
Gothenburg, 2 2 pkgs. 1
Genoa, 7 6
Ghent, 5
Hamburg, 6 4
Leghorn, 8
Naples, 6
Rouen, 1
Rotterdam, 5 4 2 12
St. Petersburg, 50
Stettin, 39
Stockholm, 1
Stavanger, 1
Uleaborg, 1 cs. 3 3 kgs.
Wasa, 2

**Pitch—**
Antwerp, 365 t.
Flushing, 60

**Salt—**
Helsingfors, 5 t.

**Soap—**
Antwerp, 1 cs.
Bergen, 1
Christiania, 65

**Soda Ash—**
Norrkoping, 2 cks.

**Sodium Nitrate—**
Jersey, 227 bgs.

**Tallow—**
Amsterdam, 2 cks.
Gothenburg, 9

**Tar—**
Bergen, 5 cks.
Copenhagen, 6
Genoa, 4
Hamburg, 16
Rotterdam, 2
Stavanger, 9

**Varnish—**
Antwerp, 3 cs. 2 dms. 2 hampers.
Abo, 1 ck.
Bergen, 1
Christiania, 1
Genoa, 16 4
Rotterdam, 1

**Zinc White—**
Bergen, 20 dms.

## TYNE.

*Week ending July 9th.*

**Alkali—**
Christiania, 11 t. 3 c.

**Ammonium Carbonate—**
Hamburg, 11 c.
Randers, 7

**Ammonium Sulphate—**
Hamburg, 50 t.
Barcelona, 20
Valencia, 80

**Anthracene—**
Rotterdam, 22 t. 10 c.

**Antimony—**
Hamburg, 2 t. 11 c.
Barcelona, 1 4

**Barytes—**
Hamburg, 1 t.

**Barytes Carbonate—**
Hamburg, 108 t. 8 c.

**Bleaching Powder—**
Helsingfors, 19 t. 19 c.
Konigsberg, 2 1
Stockholm, 30 3
Antwerp, 138 8
Hamburg, 10 4
Drontheim, 9 18
Copenhagen, 8 3
Rotterdam, 13 8
St. Petersburg, 197 1
Gothenburg, 12 17

**Caustic Soda—**
Konigsberg, 10 t. 2 c.
Stockholm, 10 3
Hamburg, 5 16
St. Petersburg, 15 19
Valencia, 35 13

**Colours—**
Civita Vecchia, 2 t. 7 c.

**Copperas—**
Copenhagen, 10 t. 5 c.

**Creosote—**
Aalburg, 10 c.

**Magnesia—**
Antwerp, 1 c.
Hamburg, 18
Barcelona, 3 t. 19

**Oxalic Acid—**
Konigsberg, 11 c.
Barcelona, 1 t. 14

**Paint—**
Drontheim, 15 c.

**Phosphorus—**
Barcelona, 16 c.

**Soda—**
Rotterdam, 9 t. 16 c.

**Soda Ash—**
Konigsberg, 40 t. 13 c.
Gothenburg, 11 5

**Sodium Hyposulphite—**
Barcelona, 3 t. 2 c.

**Sulphur—**
Antwerp, 20 t.
Hamburg, 10
Rotterdam, 10
Gothenburg, 210

**Tallow—**
Hamburg, 1 t. 12 c.

**White Lead—**
Stockholm, 11 t. 11 c.
Hamburg, 1 7

## GOOLE.

*Week ending June 22nd.*

**Coal Products** *(otherwise undes.)*
Calais, 3 cks.
Ghent, 35
Hamburg, 20

**Creosote Oil—**
Knysna, 1,750 cks.

**Dyestuffs** *(otherwise undescribed)*
Boulogne, 3 cks.
Ghent, 1 cs.
Hamburg, 6

**Manure—**
Copenhagen, 392 t.
Hamburg, 650 bgs.

**Pitch—**
Antwerp, 307 t.

## GRIMSBY.

*Week ending June 27th.*

**Chemicals** *(otherwise undescribed.)*
Dieppe, 9 pkgs.
Hamburg, 2 cs.
Malmo, 5

**Coal Products** *(otherwise undesc'd.)*
Dieppe, 101 cks.

**Dyestuffs** *(otherwise undescribed)*
Dieppe, 3 cks. 7 bgs.

# PRICES CURRENT.

WEDNESDAY, JULY 20th

PREPARED BY HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

*The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities m*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids :—** | | | | |
| Acetic, 25 °/₀ and 40 °/₀ | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | 50/- | | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 °/₀) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ( ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 0 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| ,, ,, (medium qualities) | ,, | 4 | 15 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, ·880=28° | per lb. | 0 | 0 | 3 |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 9 | 17 | 6 |
| ,, (grey) Hull | ,, | 9 | 17 | 6 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 2 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes :—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8¾ |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 10½ |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 8 |
| ,, 50/90 ,, | ,, | 0 | 1 | 3½ |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 6½ |
| ,, (crude 60°) | per gallon | 0 | 1 | 1½ |
| Creosote (ordinary) | ,, | 0 | 0 | 1 |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 0 | 11 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 45 | 0 | 0 |
| ,, Sulphate | ,, | 15 | 5 | 0 |
| ,, Oxide (copper scales) | ,, | 45 | 0 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 45 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 17 | 6 |
| ,, Litharge Flake (ex ship) | ,, | 14 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, ( brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |

| | | £ |
|---|---|---|
| Lime, Acetate (brown) | per ton | 5 |
| ,, ,, (grey) | ,, | 10 |
| Magnesium (ribbon and wire) | per oz. | 0 |
| ,, Chloride (ex ship) | per ton | 2 |
| ,, Carbonate | per cwt. | 1 |
| ,, Hydrate | per ton. | 17 |
| ,, Sulphate (Epsom Salts) | per ton | 2 |
| Manganese, Sulphate | ,, | 17 |
| ,, Borate | per cwt. | 2 |
| ,, Ore, 70 % | per ton | 4 |
| Methylated Spirit, 61° O.P. | per gallon | 0 |
| Naphtha (Wood), Solvent | ,, | 0 |
| ,, ,, Miscible, 60° O.P | ,, | 0 |
| **Oils :—** | | |
| Cotton-seed | per ton | 19 |
| Linseed | ,, | 20 |
| Lubricating, Scotch, 890°—895° | ,, | 7 |
| Petroleum, Russian | per gallon | 0 |
| ,, American | ,, | 0 |
| Potassium (metal) | per oz. | 0 |
| ,, Bichromate | nett per lb. | 0 |
| ,, Carbonate, 90% (ex ship) | per ton | 18 |
| ,, Chlorate | per lb. | 0 |
| ,, Cyanide, 98% | ,, | 0 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 |
| ,, Nitrate (refined) | per cwt. | 1 |
| ,, Permanganate | per cwt. | 3 |
| ,, Prussiate Yellow | per lb. | 0 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 |
| ,, Muriate, 80 % ( do. ) | ,, | 7 |
| Silver (metal) | per oz. | 0 |
| ,, Nitrate | ,, | 0 |
| Sodium (metal) | per lb. | 0 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 6 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 |
| ,, Acetate (ex-ship) | ,, | 16 |
| ,, Arseniate, 45 % | ,, | 11 |
| ,, Chlorate | per lb. | 0 |
| ,, Borate (Borax) | nett, per ton. | 29 |
| ,, Bichromate | ,, per lb. | 0 |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | nett pr. ton | 11 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, | 11 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, | 10 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, | 9 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, | 8 |
| ,, Bicarbonate | ,, | 6 |
| ,, Hyposulphite | ,, | 7 |
| ,, Manganate, 30% | ,, | 16 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 |
| ,, Nitrite, 98 % | per ton | 30 |
| ,, Phosphate | ,, | 15 |
| ,, Prussiate | per lb. | 0 |
| ,, Silicate (glass) | per ton | 5 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 |
| ,, Stannate, 40 % | per cwt. | 3 |
| ,, Sulphate (Salt-cake) | per ton. | 1 |
| ,, ,, (Glauber's Salts) | ,, | 1 |
| ,, Sulphide | ,, | 7 |
| ,, Sulphite | ,, | 6 |
| Strontium Hydrate, 100% | ,, | 8 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 |
| ,, Barium, 95 % | ,, | 0 |
| ,, Potassium | ,, | 0 |
| Sulphur (Flowers) | per ton. | 8 |
| ,, (Roll Brimstone) | ,, | 6 |
| ,, Brimstone : Best Quality (nominal) | ,, | 5 |
| Superphosphate of Lime (26 %) | ,, | 2 |
| Tallow | ,, | 27 |
| Tin (English Ingots) | ,, | 98 |
| ,, Crystals | per lb. | 0 |
| Zinc (Spelter) | per ton | 21 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 |

THE

# CHEMICAL TRADE JOURNAL

AND

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IDGE AND HILLINGDON GAS CONSUMERS' COMPANY.

TAR AND AMMONIACAL LIQUOR.

Directors are prepared to receive TENDERS the purchase of the surplus TAR and AMMONIACAL LIQUOR pro- heir Works during the ensuing Twelve Months from 1st of September next. antity of Tar will be about 35,000 gallons, and the quantity of Liquor will n 800 and 900 butts, both of which will be delivered free into Contractor's ngside the Works, on the Grand Junction Canal.

, endorsed for Tar or Liquor (as the case may be), must be addressed to nan, and be delivered at the Company's Offices, High-street, Uxbridge, han Saturday evening, August 6.

mpany have no special form of tender; but it is suggested that the Tar tendered for at so much per gallon, and the Ammoniacal Liquor at so ounce per butt—the strength being ascertained by Wills's distillation test. ectors do not bind themselves to accept the highest or any tender.

particulars may be obtained of the undersigned.

S. PENNY, Assoc.M.Inst.C.E.,
Engineer and Manager.

ge, Middlesex,
y 22, 1892.

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ommunications for the *Chemical Trade Journal* should be d, and Cheques and Post Office Orders made payable to—

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tisements intended for insertion in the current week's issue each the office by **Wednesday morning** at the latest.

## THE RESULTS OF INSPECTION.

WE so frequently have the misfortune to be compelled by the sheer force of the evidence put forward to pick holes in the various attempts which Government has made to improve the conditions under which the industries in which we are chiefly interested are carried on, that it is a pleasant change to be able to call attention to the successful results which have followed the fulfilment of the Factories Act in one branch at least.

Whatever the difficulties in the way of adequate inspection may be under the Factories Act, there are undoubtedly many to be met when facing the project of inspecting the white lead works which lie in the east of London.

The great difficulty lies not so much in the mere inspection as in ascertaining that the precautions and provisions laid down are adhered to in the daily routine of these works.

As a general rule it is taken for granted that the employers are the offenders, since they are loth to sink the capital which is required for providing the ways and means for the execution of the specified rules. It is an open question how far this assumption holds good, but in reference to white lead factories, it is wholly fallacious.

Mr. Cameron in his recent report states that he has given special attention to the conduct of the white lead works in his, the East London district, and as the result, is able to attest a very noticeable improvement.

It is probably already well known that it is customary in these works to engage a medical man to examine the employés weekly, and attend to all the cases which the firm may refer to him. In addition to this, special facilities are afforded to enable the hands to maintain themselves in as cleanly and healthy a state as their occupation will permit.

As an instance of the willingness of employers to do all that lies in their power it may not be out of place to mention the following: the susceptibility to poisoning varies with individual constitutions, especially those which are likely to be weakened by any strain put upon them outside the works. Bearing this in mind one of the medical advisers connected with a large works noticed that those operatives who came to their work from a distance were more liable to poisoning than those who lived in the immediate neighbourhood. He, therefore, suggested that refreshment should be taken by those living at a distance prior to commencing their work. This suggestion was carried out by the firm, though the idea was but hypothetical, with the result that a marked improvement has been observed.

An ingenious idea is also made use of in the arrangements for washing. Two troughs are provided, one containing petroleum and the other a warm solution of Epsom salts. By dipping in the former the skin is thoroughly cleansed, while the latter converts any white lead left into sulphate, which, being very insoluble, is less likely to be taken into the system. The actual advantages gained by adopting these

precautions have been established satisfactorily, and employers now all provide the means for enabling their operatives to use these safeguards.

Yet, with the characteristic perversity of human nature, when everything that can be done has been done, and every accommodation provided, the hands themselves seem to exhibit the greatest callousness, and the need for inspection lies with them, not the employers. It is often said the more that is done for the British workman the more he wants done for him, and so it seems.

We hear enough of the wrongs which he has to suffer, especially in chemical works, and the Labour Commission has given a good opportunity for the display of harrowing accounts of the hardships endured; but when it comes to this, that masters have been disheartened by the utter want of reciprocity in their hands, no wonder they decide to let the present state of things continue.

What is to be done when a man who having become poisoned to such a degree as to develop dangerous symptoms, after having medical attendance, being sent to a convalescent home and restored to robust health, persists against all dissuasion in returning to the same work, and in consequence dies within a fortnight? The only excuse that can be suggested is that he had no other calling to follow, but unfortunately the man in question had been originally a seaman, and therefore willingly chose an unhealthy occupation in preference to a healthy one.

Any attempt to help such people is futile, but fortunately employers act in the hope of benefitting the majority, and do not make all suffer for the foolhardiness of the few.

There is one point, however, which seems self evident from the foregoing. The removal of the troubles which present themselves in connection with smoke, air pollution, and even sewage, by the intervention of State control, providing suitable measures were adopted, would not lay the burden in one quarter only, but ultimately divide the onus, and we fancy a good many who clamour for protection now will be less eager when they see how things cut both ways, and that successful inspection under Parliamentary Acts brings an equal responsibility to both employers and employed, producer and consumer.

# Official Memoranda.

*From the Board of Trade Journal.*

## THE WORKING OF SALT MARSHES IN FRANCE.

The following statistics of the salt marshes of France for the year 1890 are taken from the *Monde Economique*:—

The area of the salt marshes in working in 1890 was 18,000 to 19,000 hectares (hectare = 2·47 acres). They were worked in 12 departments, of which seven were on the Mediterranean littoral and five on the Atlantic coasts.

The most important as regards production were, on the one side, those of Bouches-du-Rhône, Gard, Herault, and Var, and on the other, those of Charente-Inferieure and Seine-Inferieure.

The yield was better than the former ones; it amounted to 352,000 tons, whilst it was only 262,000 tons in 1889 and 167,000 tons in 1888. Of the total of 352,000 tons, the salt marshes of the Mediterranean supplied 257,000 tons.

The sale price of the salt has not suffered from the abundance of production; it has increased by 3·57 francs, and has been 24·15 francs (nearly £1. per ton).

The number of workmen employed in the salines, for the greater part during a few months only, was about 8,000. Their daily wage was nearly 2·90 francs (2s. 4d.), without reckoning the accessory products of fishery in the fosses and canals adjoining the salt-pits, and from the leasing of the borders and declivities, which the owners working the salt-pits generally grant to their men.

## CUSTOMS TARIFF OF PORTUGAL.

The following gives a comparative statement of the custom's duties now levied in Portugal on certain products of importance to the chemical and kindred industries, with the duties previously in force:—

| Articles, &c. | Duties of Tariff of 1887 | Duties now in force. |
|---|---|---|
| RAW MATERIAL FOR USE IN INDUSTRY AND COMMERCE. | Reis. Per Kilog. | Reis. Per Kilog. |
| *Chemical Products,* | | |
| Acids, acetic, pyroligneous, indicating 6° Beaumé's areometer .. .. | ·7 | 1 |
| ,, arsenic .. .. .. .. | 1·4 | 1 |
| ,, nitric .. .. .. .. | 30 | 30 |
| ,, hydrochloric and sulphuric .. | 1 | 2 |
| Alkalis, caustic, solid or liquid .. .. | 10 | 10 |
| Nitrate of potash (saltpetre) .. .. | 35 | 15 |
| ,, silver .. .. .. .. | 337·5 | 350 |
| ,, soda .. .. .. .. | ·8 | 1 |
| Soda, boracic .. .. .. .. | 2·4 | 2 |
| Bromine, iodine, and phosphorus.. .. | 16·8 | 15 |
| Carbonate of potash, unrefined .. .. | 7 | 7 |
| ,, ,, refined .. .. | 55 | 25 |
| ,, soda, crude .. .. .. | ·8 | 1 |
| ,, ,, crystallised or refined, dry .. .. .. | 15 | 16 |
| Chlorate of calcium.. .. .. .. | ·6 | 1 |
| ,, sodium .. .. .. .. | 10 | 10 |
| Salts of Quinine, chlorhydrate, sulphate, tannate, or valerianate, etc. .. | — | 2,000 |
| Sulphate of soda, of potash, of copper, and of iron .. .. .. .. | 5 | 5 |
| All other chemical products, not otherwise distinguished .. .. .. | 12% *ad. val.* | 13% *ad. val.* |

MISCELLANEOUS PRODUCTS.

| | Per Kilog. | Per Kilog. |
|---|---|---|
| Acids, fatty, and refined oleine and paraffin | 60 | 65 |
| (*Paraffin, refined*) .. .. .. .. | 60 | — |
| Chemical manures for agricultural purposes | ·3 | 3·3 |
| Shreds, fragments, and rags to be pulped for paper making, and pulp in whatever state, and of whatever quality for the manufacture of paper .. .. .. | ·8 | 1 |
| Wax, animal, vegetable, or mineral, crude (gross weight) .. .. .. .. | 20 | 22 |
| Colours and dyes, in the dust or as stone, not prepared (gross weight) .. .. | Duties vary | 7 |
| Dye extracts, in whatever state (gross weight) .. .. .. .. .. | Duties vary | 7 |
| Saccharin .. .. .. .. .. | 15,000 | 18,000 |
| Substances intended for use for medicine or for perfumery, not otherwise distinguished | 7% *ad. val.* | 7% *ad. val.* |

MINERAL PRODUCTS.

| | | |
|---|---|---|
| | | Per Ton. |
| Tar and Pitch (mineral) .. .. .. | Duties vary | 100 |
| | | Per Kilog. |
| Cement and Gypsum .. .. .. | Duties vary | 3·5 |
| Lime and "Pozzolana" .. .. .. | | 1·5 |
| | Per Ton. | Per Ton. |
| Coal .. .. .. .. .. .. | 325 | 345 |
| Coke and briquettes .. .. .. | 325 | 400 |
| Sulphur .. .. .. .. .. | 339·4 | 330 |
| Ice .. .. .. .. .. .. | 160 | 1,000 |
| | | Per Kilog. |
| Marble and Alabaster in the rough .. | 3% *ad. val.* | 3 |
| ,, ,, sawn .. .. | — | 10 |
| Mineral products, not otherwise specified, | | Per Ton. |
| unwrought .. .. .. | Duties vary | 100 |
| ,, ores, lead .. .. .. | 2% *ad. val.* | 1,500 |

A RUBBER WORKS ON FIRE.—The indiarubber works, owned by Messrs. Henry and Co, at Rotherhithe, London, were last week destroyed by fire. Three other warehouses narrowly escaped destruction.

# IISTORY OF COMMERCIAL FERTILIZERS.

*( Concluded from page 388. )*

CARBON.

*nce in Nature.*—Carbon usually occurs in nature united into ls with other elements. Thus, most products of plant life arbon combined with the elements hydrogen and oxygen ; tarch, sugar and cellulose or woody fibre. Carbon, combined en, occurs in the air in the form of carbon dioxide, commonly bonic acid gas. Carbon, when combined with oxygen and ent such as calcium, occurs in the form of carbonates ; for marble, limestone and chalk are chemically known as calcium or carbonate of lime.

by itself or in the free condition, that is, not united w.th any ents, is familiar to us in several different forms ; the most f these forms are (1) diamonds ; (2) graphite, which is used nufacture of lead pencils ; (3) ordinary wood charcoal ; (4) k ; (5) animal charcoal ; (6) mineral coal. Excepting these forms of carbon are more or less impure, containing r things mixed with the carbon.

rtinent to make here the inquiry, "What is the relation of fertilizers?" Before we can answer this question satis- we must know what is meant by a fertilizer and what must be as necessary constituents of a fertilizer. We will, therefore, from our consideration of the element carbon and take the ty, at this stage, to give some definitions of general and rms which we shall have occasion to use more or less .

DEFINITIONS.

*er.*—As ordinarily spoken of, a fertilizer may be defined as nce which, by its addition to the soil, is intended to produce rowth of plants.

terials which come under the head of fertilizers are numerous nd different both in form and in the manner in which they act. lowing tabulated classification, while not strictly accurate in ect, will serve to give a good general idea of the number and f the terms used in speaking of fertilizers :—

- I. Direct
  - 1. Natural
    - Stable manure.
    - Refuse vegetable matter.
    - Green crops for ploughing under.
    - Cotton seed.
    - Muck, marls, etc.
  - 2. Artificial
    - Commercial
      - *a.* Complete or general.
      - *b.* Incomplete or special.
    - Chemical
    - Prepared.
- II. Indirect
  - Lime.
  - Gypsum.
  - Salt, etc.

erms are, in general, loosely and indiscriminately used, as ning is often misunderstood ; and so an attempt will be made efine them in accordance with the best usage of the terms.

t fertilizer is one that contains elements of plant food which ble at once, that is, which can be taken up and used immedi- lants.

m available is applied to plant food which is soluble, that is, condition that the roots of the plant can take it up readily in

ood is unavailable when it is in an insoluble form, so that the he plant fail to take up any part of it. A large proportion of l present in the soil is unavailable, but, by the action of air, bonic acid, etc., it is gradually changed to soluble or avail- s, which the plant can take up and use. As will be noticed sphoric acid in the form of insoluble calcium phosphate, or e of lime, is unavailable as plant food, but when converted per-phosphate, or soluble calcium phosphate, it becomes avail- navailable plant food is potential food or food in reserve.

irect fertilizer is one which does not furnish to the soil any lant food and which may not be a plant food at all, but which erized by the way in which it acts on the matter already in the nging more or less of it from unavailable plant food to an form. For example, lime, gypsum, salt, etc., are indirect , so far as they have any fertilizing action. Later, some will be given to the action of some of the most familiar ertilizers.

l fertilizers include the solid and liquid excrement of animals, of vegetable refuse, green crops for ploughing under, cotton cks, marls, etc.

Artificial fertilizers are also known by such names as commercial fertilizers, chemical fertilizers, prepared fertilizers, etc , and are artificial preparations or mixtures of fertilizing materials sold under trade names. The fertilizing materials used in making these mixtures include the substances found in natural deposits and by-products of numerous industries, which are obtainable by farmers only through the channels of trade. Some substances which might be classed as natural fertilizers, such as cotton seed meal and tobacco stems, are also included among the materials of artificial fertilizers.

Complete fertilizers, known also as general fertilizers, are those which contain nitrogen, phosphoric acid and potash.

Incomplete fertilizers, also called special fertilizers, are those which contain only one or two of the three constituents, nitrogen, phosphoric acid and potash.

There is a common practice among farmers and dealers, of calling all commercial fertilizers "phosphates," regardless of whether they contain any phosphates at all or not. The practice is clearly objection- able, because a phosphate is not the only fertilizing constituent present in commercial fertilizers—in some cases it may be entirely absent. The term "super-phosphates" applies truthfully to many commercial fertilizers, but even these cannot be correctly spoken of as simply "phosphates."

Having considered such definitions as we may have occasion to use more or less frequently, we can now return to

THE RELATIONS OF CARBON TO FERTILIZERS.

We know that carbon must be an important element in plant food, since it forms nearly one-half of the solid proportions of plants. Not- withstanding the fact that carbon forms so large a portion of plants, it has no importance as an active food constituent of direct fertilizers. This statement may appear strange and the question may be asked, "Why is not carbon to be regarded as an essential constituent of direct fertilizers?" The answer is that the carbon of plants comes from the carbon dioxide (carbonic acid gas) of the air, and the air furnishes an inexhaustible and available supply of this substance. We do not, therefore, need to add carbon to the soil However, as we shall notice later, some forms of carbon possess value as indirect fertilizers.

THE RELATIONS OF HYDROGEN AND OXYGEN TO FERTILIZERS.

As already stated, water is formed by the union of two gases, hydrogen and oxygen. These elements are supplied to plants in the form of water. Growing plants contain a larger amount of water than of any other constituent. The oxygen and hydrogen of the water are separated in the plant, and in this way plants secure the hydrogen and oxygen which they need to build up their tissues. In this manner water acts as a direct fertilizer. The water is supplied by rains to the soil ; from the soil it is taken into the plant through the roots. In regions adapted to agriculture, plants receive all the hydrogen and oxygen needed, and usually much more, from the rains. Therefore, these elements are not considered important parts of fertilizers, except, perhaps, that it is desirable to have in a commercial fertilizer as little water as possible.

When water is supplied to plants by irrigation, it can very properly be called a fertilizer, and an extremely important one, too.

In addition to its action as a direct fertilizer, water has an important part to play as an indirect fertilizer. Thus, it dissolves the soluble food materials of the soil, the mineral matter and most of the nitrogen, and carries them into the plant. In addition to its action as an indirect fertilizer, water acts as a carrier within the plant in transferring from one part of the plant to another, as needed, the various products con- tained in the plant, just as the blood in the animal body carries to every part the nutriment adapted to each organ and part.

NITROGEN.

*Occurrence of nitrogen.*—Nitrogen occurs in nature in the following forms :—

(1.) As a constituent of air.
(2.) In the form of ammonia.
(3.) In the form of nitric acid and nitrates.
(4.) In various other forms in plants and animals.

*Nitrogen in ammonia.*—Nitrogen combined with the element hydro- gen forms ammonia. Ammonia is present in the air in very small quantities. Ammonia is formed when vegetable and animal substances containing nitrogen decompose.

Ammonia is a colourless gas, and it is this gas dissolved in water which is familiar to us as ammonia water, or "spirits of hartshorn," and which causes the peculiar odour of "hartshorn."

Ammonia unites with different acids and forms salts, much as acids do ; these salts we call ammonium salts, compounds which do not generally have any odour like ammonia. Thus, ammonia combined with sulphuric acid forms ammonium sulphate, called by some, sulphate of ammonia. Ammonia combined with hydrochloric acid forms ammonium chloride, sometimes called muriate of ammonia, also known as salammoniac.

*Nitrogen in nitrates.*—Nitrogen, combined with hydrogen and oxygen, forms nitric acid or *aqua fortis*. If in nitric acid a metal, as sodium, for example, takes the place of hydrogen, we have a sodium salt of nitric acid, or a nitrate, formed, called sodium nitrate.

When animal or vegetable substances decompose in rather warm, moist places, the nitrogen is changed into nitrates. This change of the nitrogen of organic matter into nitrates is caused by bacteria, which are very small living vegetable organisms, and which exist everywhere in enormous numbers. The process is known as "nitrification."

*Nitrogen in animals and plants, or, organic nitrogen.*—Nitrogen, combined with the elements, hydrogen, carbon and oxygen, occurs in plants and in animals. Such substances, for example, are the case in curd of milk, the gluten or gummy portion of wheat, the fibrin of blood, the white of egg, etc. When such compounds decompose, the nitrogen is first changed into ammonia, and then, under proper conditions, into nitric acid or nitrates. The nitrogen existing in animals and plants is generally spoken of as organic nitrogen.

IN WHAT FORMS IS NITROGEN USEFUL TO PLANTS?

Plants can use nitrogen in three different forms, viz. :

(1.) As nitrogen gas or uncombined nitrogen.
(2.) In the form of ammonia.
(3.) In the form of nitrates.

All plants cannot use nitrogen in any of these three forms equally well, but each form is found specially suited to certain kinds of plants, as will be noticed.

*Nitrogen gas used by plants.*—Although we have nitrogen gas, or uncombined nitrogen, existing in the air in enormous quantities, still, the number and kinds of plants which can use the nitrogen of the air is not large. In general, those plants which are called leguminous, such as the bean, pea, clover, alfalfa, etc., can take uncombined nitrogen from the air.

*Nitrogen of ammonia used by plants.*—The leaves of some plants have the power of absorbing ammonia directly from the air and obtain nitrogen in this way. Some plants obtain nitrogen from ammonium salts through the soil.

*Nitrogen of nitrates used by plants.*—The largest part of the nitrogen which most plants obtain is taken up by their roots from the soil in the form of nitrates; that is, nitric acid combined with some metal, as sodium or potassium. As already stated, most of the nitrates used by plants are formed by changing into nitrates ammonia compounds and organic substances in the soil by the process called nitrification. Hence, nitrogen, in the form of nitrates, is the most available form for most plants; that is, it can be most readily taken up and used by plants.

RELATION OF NITROGEN TO FERTILIZERS.

Experiments have shown that nitrogen is essential to the growth of plants; that the quantities of nitrogen available as plant food are very small; that nitrogen is one of the first elements in the soil to be used up; that, of all the fertilizing elements, nitrogen is and always has been the most expensive.

THE SPECIFIC ACTION OF NITROGEN UPON PLANTS.

The influence of nitrogen in its various forms upon plant growth is shown by at least three striking effects.

First.—The growth of stems and leaves is greatly promoted, while that of buds and flowers is retarded. Ordinarily, most plants, at a certain period of growth, cease to produce new branches and foliage, or to increase those already formed, and commence to produce flowers and fruits, whereby the species may be perpetuated. If a plant is provided with as much available nitrogen as it can use just at the time it begins to flower, the formation of flowers may be checked, while the activity of growth is transferred back to and renewed in stems and leaves, which take on a new vigour and multiply with remarkable luxuriance. Should flowers be produced under these circumstances, they are sterile and produce no seed.

Second.—The effect of nitrogen upon plants is to deepen the colour of the foliage, which is a sign of increased vegetative activity and health.

Third.—The effect of nitrogen is to increase, in a very marked degree, the relative proportion of nitrogen in the plant.

LOSS OF NITROGEN COMPOUNDS.

Since ammonia compounds and nitrates dissolve easily in water, is there not a danger of their being carried away in drainage water from the upper soil out of reach of the plant?

Experiments have been made to settle the question, and results indicate that ammonia compounds are largely retained in the soil. Nitrates are apt to be washed out and lost in the case of bare fallow land; but when the soil is covered with vegetation there is little or no loss, for the reason that the roots of growing plants absorb nitrogen very readily. Some nitrogen is also lost by organic matter in the *process of* decay, escaping into the air as free nitrogen.

These losses of nitrogen are, to some extent, replaced naturally by means of the nitric acid and ammonia dissolved by the rain and dew, also by organic matter decaying at the surface of the soil, and also by conversion of the free nitrogen of the air into some form which the plant can take up and use. These natural additions of nitrogen do not usually make good on the farm the losses, and in time the nitrogen becomes insufficient to produce paying crops without the addition of nitrogenous manures.

## COLD GALVANIZING.

THE ordinary method of galvanizing articles of iron and steel consists in steeping them in a bath of molten zinc. There are certain drawbacks incidental to this treatment which reduces the strength of wire and renders iron and steel of small section brittle. In order to counteract the effect on wire, the bath of zinc is kept at a low temperature and the wire is run through it at a high rate of speed, which, however, leads to imperfect coating and a waste of zinc. To overcome these and other difficulties a cold galvanizing process has been introduced by the London Metallurgical Company, of 80, Turnmill-street, London. The new system has several special features, the chief of them being the introduction of electricity into the process. From the reports of public experts who have tested in various ways articles treated by the cold process, it appears that the coating of zinc is more adhesive and affords a better protection to the iron than an equal thickness put on by the hot process. Fine wire gauze is coated on the new system without the meshes being filled up with zinc, and small screws similarly treated do not require retapping, the threads being quite clean. The process is also suitable for coating nails and spikes, as it does not impart to them a slippery surface similar to that given by hot galvanizing. It is stated that the cost of the cold system is no greater than that of ordinary hot galvanizing.

## SOCIETY OF CHEMICAL INDUSTRY.

ANNUAL GENERAL MEETING.

*First day, Wednesday, July 20th.*—We have already reported the most important event of the business meeting on the first day, viz., the presidential address, but it is not to be supposed that the interest of the proceedings departed on its conclusion. By a happily conceived arrangement, a dinner was held at the Hotel Previtali, where the meetings of the club connected with the London Section habitually take place, in order to formally welcome prominent members of the provincial sections, the most noticeable incident of which was the opportune eloquence of the General Secretary, Mr. C. G. Cresswell, who entertained the company with a racy description of the training he had undergone and the experiences he had encountered previous to his attainment of his present position as the foremost official of the largest chemical society but one in the world, interspersed by numerous topical allusions, the sparkle of which could only be rightly appreciated at the time and under the conditions of their utterance.

THE RECEPTION AND SMOKING CONCERT.

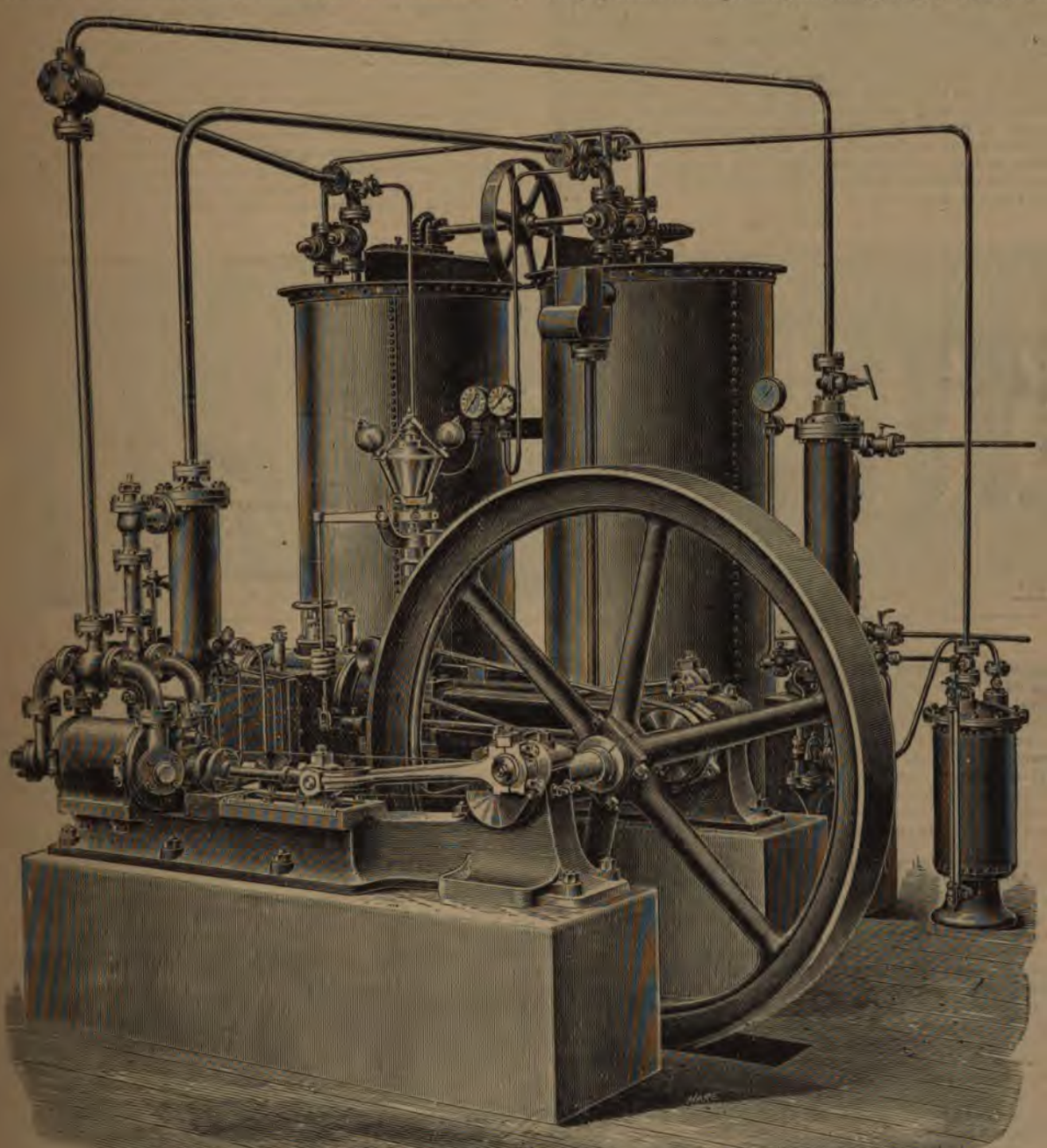
The capacity of the distinguished provincial members for continuous festivity was further tested by the adjournment that took place immediately after the dinner to the president's reception, which was held at the rooms of the Institute of Painters in Water Colours, in Piccadilly. A reception is by itself rather a frigid function, but the London Committee, recognising this fact, had linked it with a smoking concert, in order to impart the requisite air of *abandon*. Mr. J. C. Butterfield had kindly undertaken the management, and had collected a galaxy of talent that had no need to fear comparison with that which had contributed to the entertainment on the occasion of the last London meeting. So full was the programme that it was only concluded by reducing the conversational intervals to the smallest possible dimensions. With regard to the more material part of the enjoyment it suffices to say that it was of a class equal to that of the mental and emotional.

*Second day, Thursday, July 21st.*—An excursion down the river—to Londoners there is but one river in the world, namely, the Thames—was on the cards for Thursday, and so well was it responded to that, on account of the limited area of one of the works to be visited, it had to be made in two divisions, starting in separate steamers and afterwards joining again for the terminal visit to Erith. The following works were inspected :—

## THE LINDE BRITISH REFRIGERATING CO., LIMITED.

These works have special interest to those connected with the chemical trade. For the benefit of those members, who, for one reason or another, were unable to visit these works, we give the following brief account of the process which is carried on by this firm.

The chief works and cold stores are situated at the side of the Thames, at Lower Shadwell, E., next to the New Fish Market. The plant has a capacity equal to the production of 150 tons of ice per 24 hours, the whole of the machinery not being used exclusively for the production of ice, but partly devoted to maintaining the efficiency of the cold stores. When in full work the plant produces 130 tons per day, the remaining 20 tons of ice being available in the cold stores as a reserve.



### THE PROCESS.

The system of cold production, or rather heat elimination employed by the Lindé Company, is that introduced so successfully by Professor Lindé, of Munich, some seventeen years ago, and is based on the evaporation of liquid anhydrous ammonia ($NH_3$). This liquid boils a atmospheric pressure at about 28 deg. below zero, F., and is otherwise peculiarly fitted for use as a refrigerating agent, for it possesses a very high latent heat of vaporisation, as well as a low specific heat and convenient condensing pressure. These properties combine to make it the most economical refrigerating agent known. The heat necessary for the evaporation of this liquid is abstracted from the surrounding bodies, which in practice are generally brine or air, and the ammonia vapour is then, by means of compression, and contact with a surface condenser again brought into the liquid form at a temperature depending upon that of the cooling water available. The liquid ammonia, thus recondensed, flows back into the refrigerator, and is then again evaporated, so that the same small quantity of ammonia is continually subjected to the same cycle of operations.

### THE PLANT.

The apparatus necessary for an ice-making plant on the Lindé system, consists mainly of three parts, viz., the compressor, the condenser,

and the ice generator, with which is combined the refrigerator. The ammonia compressor is a double-acting pump, a principal feature of which is the stuffing box, which is specially constructed to fulfil the important function of preventing the escape of the ammonia vapour. In the stuffing box there are two systems of packing, with a space between them, and a small pump continually forces a small stream of oil over the piston rod, which is thereby kept perfectly lubricated. By this arrangement leakage of ammonia is practically entirely avoided, and the amount of the chemical lost is inappreciably small. In order to prevent any of the sealing liquid entering the condenser or refrigerator coils, and so reducing their efficiency, a collecting vessel is inserted in the delivery pipe from the compressor. The liquid here collected is taken to a small rectifying apparatus, in which the absorbed ammonia is separated from the oil, and conducted into the suction pipe, while the rectified oil is again used in the stuffing-box. As already stated, the suction pipe of the compressor communicates with the refrigerator and the delivery pipe with the condenser. It is particularly worthy of remark that in the Lindé system the compression of the vapour is accomplished nearly isothermally, the compressor not only requiring no artificial cooling by a water jacket, but being generally covered with frost when the machine is at work. The power expended in compression is in this way much reduced.

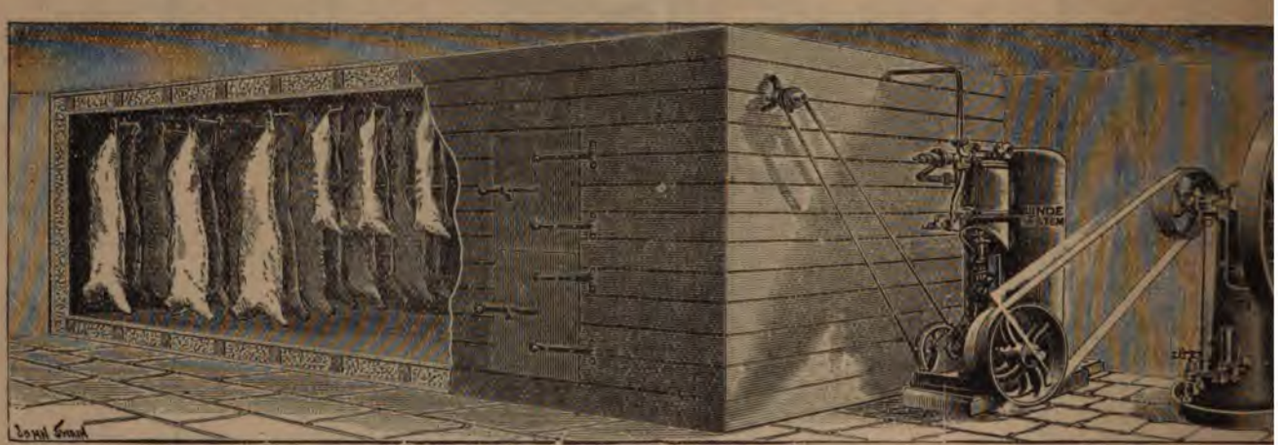
The industries to which the application of the Lindé syste and is applied, are numerous, being largely used at brewerie chemical works, and candle and stearine works.

Apart from their system for the production of ice or the ref of liquids, this firm have done much towards improving the employed for cooling and preserving meat when storing the transport, their machines on the Lightfoot dry-air system, bei sively used on steamers engaged in the merchant traffic, as the *Teutonic*, *Majestic*, and other large Atlantic liners.

The novelty of the process lies in the circulation of cold dry is found to be more advantageous than any system of pipes or tanks.

Such a plant is shown in the smaller illustration which repr application of this process to the preservation of meat.

Various sizes are made, so as to suit the requirements of the well as the large traders, these machines being constructed w circulation of from 3,000 up to 350,000 cubic feet of air per h instancing the truth of our remarks concerning the industries this method of producing cold may be successfully employed, mention that apart from the production of ice itself, a large in is now in course of construction and erection for the United A Limited, at their Hardshaw Brook Works, St. Helens, for pr



The ammonia condenser consists of a number of wrought iron tubes, each welded into one single length. These tubes are usually formed into helical coils, of varying sizes, placed one within the other in a cylindrical water tank. The compressed ammonia vapour enters these coils at the top, and is condensed by the cooling action of a circulation of cold water in the tank. The liquid ammonia is then led back to the refrigerator through a regulating valve.

The ice generator generally adopted by the Lindé Company consists of a wrought iron rectangular tank filled with brine, and containing in its bottom part the refrigerating coils, the ice moulds being suspended in the brine above. The moulds are placed in suspended frames, running on wheels along horizontal rails, and are so arranged that they can be simultaneously moved forward by gearing. The forward movement of the moulds is towards that end of the tank at which the fully frozen moulds are taken out, and thus a space is continually left at the opposite end of the tank in which to place moulds just filled with fresh water. When a row of moulds is frozen up, it is lifted from the tank by means of a travelling crane worked by power, and it is lowered into a vessel filled with warm water, called the thawing tank. In this the moulds are allowed to remain for a few seconds until the ice is detached from the sides. The moulds are then lifted out of the thawing tank, and tilted over by means of a tipping table, so as to allow the blocks of ice to slide out. The empty moulds are at once taken to the other end of the tank, when they are simultaneously filled with measured quantities of water, and replaced in the brine for a renewal of the freezing process. Only one workman is required for the whole of these operations, hand labour being entirely avoided. The ice made as above is more or less opaque, depending upon the nature of the water dealt with, and the speed at which the ice has been frozen. In order to produce transparent ice, one of two courses must be adopted. Either the water must be agitated during the freezing process so as to allow the air to escape, or the ice must be made from distilled water, from which the presence of air has been carefully excluded. All these systems are in use at Shadwell.

Our large illustration represents a complete plant for the production of ice, capable of making from four to forty tons of ice per 24 hours.

low temperature in the crystallizing department in connection manufacture of sodium chlorate.

The plant has an actual ice making capacity of 24 tons per 2 and consists of a compound surface condensing steam engine, co with a double-acting ammonia compresser on the Lindé syst ammonia condenser, two large refrigerators, and an interchan making use of the waste cold that would otherwise be lost. T is also putting up a very large plant at Messrs. Guinness Brewery, in Dublin. This plant has a capacity equal to an act duction of 100 tons of ice per 24 hours. Further, they are cons a plant for the Chesters Brewery Co., Ardwick, near Manchest

From this it will be seen that the use of this process is pretty g thirty-three plants working in Chemical works alone; the total actually supplied up to the present time having within the last fe reached sixteen thousand.

## THE DEPTFORD ELECTRIC LIGHTING STATIO

This world-renowned undertaking had consented to recei members of the society, provided the party did not exceed number. The compactness of the plant necessary to convert siderable amount of mechanical power into electricial energy ca works of the first order of magnitude to cover little space and ill-adapted to cope with large bodies of eager enquirers. The in tion is especially noteworthy, because it is a magnificent example success attending the transmission of energy at high tension, a care with which this can be transformed to manageable limits its domestic utilisation. The plant includes some two dozen boilers, the whole of which, however, are not yet needed for the of steam to the existing engines; the works having been desig only to meet present requirements, but to provide for future de ments. The engines are fine specimens of the Corliss type; larger indicating 1,500 h.p., the smaller, kept for service in time, having an output of 600 h p. In the case of the former, pulley, with 40 grooves on its face, transmits the power to a ponding pulley on the shaft, carrying the armature of the

dynamo by means of ropes in place of belts. The dynamo to correspond is a remarkable piece of mechanism. The field magnets are arranged in an outer case, split into two halves, which can be retracted from the armature by being run along the bedplate by means of a donkey engine specially told off for that purpose. By this plan no difficulty is experienced in getting at any part of the machine for repair or adjustment. The ends of the magnets are provided with woodite caps to prevent sparking across to them from the individual members of the armature. This latter is composed of copper tape wound in groups of avoid shape, each turn being covered with an insulating varnish, and the whole isolated from the case of the machine by ebonite rings The current is taken off by a communicator of peculiar design, at a tension of 2,400 volts, and passes to the transformers, where it is transformed into one of 10,000 volts, and then departs for the distribution stations in London some nine miles away, and the conductors designed to deal with a current of this high potential are of the kind known as concentric mains. Two copper tubes are placed concentrically and insulated from each other and from outer objects by brown paper soaked in ozokerite, a system of insulation which has been found very effective. Arrived at one of the four distributing stations, the current is again changed by means of transformers indentical in pattern with those which are in use at Deptford, to one of 2,400 volts, at which tension it is led through the chief mains, and just before its entrance to the houses of the consumers is further reduced to 100 volts, so as to be well within safe limits. By this system, which sounds somewhat operose at first hearing, advantage is taken simultaneously of the economy of power and metal (in the conductors) with which a current of high potential can be transmitted, and of the safety with which one of low potential can be used by domestic consumers. One of the chief difficulties that have to be met is the wide fluctuation in the demand for electrical power according to the clearness or fogginess of the weather. The advent of a fog such as Londoners are only too familiar with will sometimes cause as many as 6,000 extra lights to be switched on in ten minutes, and much forethought has to be displayed in arranging for such exigencies. The boilers are kept under steam, in spite of the lack of enonomy resulting, and on the current being used rising in the daytime, the large engine and dynamo are started, slowly if practicable but rapidly if necessary. When no urgency exists, as in the case of ordinary evening lighting, when the time at which the demand will begin can be accurately predicted, about half an hour is taken to get the engine running at full speed, but this is reduced to a few minutes when the matter is really urgent, though naturally such haste is attended with a certain amount of risk. When once both engines are running, change from one to the other is a mere matter for manipulation at the switchboard. In spite of the immense strides in the electric lighting of London that have lately been made, the demand has not been as great as was anticipated, and the field magnet castings for a 10,000 h.p. dynamo, which are lying in the works disjointed and idle, are melancholy witness of the fact.

## THE UNION OIL MILLS.

After the Electric Supply Station had been inspected, the Union Oil Mills were visited, a longish walk through sundry uninviting streets being a necessary preliminary. No adequate provision had been made for the guidance of the visitors, and members for the most part roamed aimlessly about without cicerone or explanation. Fortunately there was nothing particularly novel which needed exposition. The process of preparing cotton and linseed cake was seen, as well as the crushing of the seed. What struck one most was the doubtful efficiency of the edge runner for this purpose, though grinding a material of this description is admittedly difficult, as it coheres and clogs the communicating surfaces. It seems to form a highly hygienic atmosphere, as the employés were evidently in excellent care, and had a plump, smooth-skinned appearance that was very noticeable. The refining of the cotton seed oil is done, as is usual, by agitation with caustic soda. Lye of 16° B. is used, and is sprinkled on to the surface of the oil from a circular pipe with distributing holes, the oil meanwhile being agitated with air. It is a question that has not to our knowledge been raised before, how far this system of air agitation is responsible for the considerable changes that undoubtedly take place in the refining of an oil, apart from the mere removal of impurities. It is obvious that it is only one degree removed from "blowing" the oil, and incipient alteration of the class induced by that process must occur. It would be interesting to compare the analytical data afforded by an oil refined with mechanical agitation with that given by one which had been treated with air, particularly as the temperature used is as much as 100° F. Filters of cotton waste, sawdust, and sacking, are used for the crude oil previous to agitation, and when clogged are boiled with water to extract the oil, and then burnt, on account of the tendency of matters of this sort towards spontaneous ignition. From this it is evident that there must be a considerable quantity of oil left in, and it becomes a question whether extraction with a volatile solvent would not be more economical, as more oil would be recovered, and the waste could probably be used again It is a little mysterious what becomes of the cottonseed oil when it is put upon the market; it appears in wholesale lists, but is unknown in the retail trade; it is whispered that it undergoes a sort of metameric change, and that the allotropic modification resulting is known as "Lucca," or "Best Salad Oil." However this may be, it is said that one firm buys it in 20 ton lots for frying fish,—a fact that may account for the somewhat pungent odour of that delicacy as dispensed in the less aristocratic quarters of most large towns.

### ARRIVAL AT ERITH.

Owing to the time occupied in visiting the above mentioned works, and the number of members who had to be landed and re-embarked, the arrival at Erith, which was fixed for half-past one, did not take place until about an hour later. A move was at once made for the luncheon given by Mr. Charles Beadle, and full justice done to an excellent repast. After due acknowledgment to their courteous host, the members poured in a stream that stretched from end to end of the little place, to one or other of the works that had been selected for a visit.

## THE MAXIM NORDENFELDT CO.

Erith is famous as the birthplace of those weapons which are chiefly useful in consummating "revolutions" in South American republics,—places which serve as excellent trial grounds for ascertaining the reliability of arms which all European Governments of standing possess, but whose utility has happily not yet been put to the test. The works is a marvel of order, precision, and cleanliness. There is an air rather of a watchmaker's or optician's than of an ordinary works, in the exactitude of the operations and the perfection of the tools. What seemed particularly worthy of remark was the number of machine tools of American manufacture, which had that indefinable air of elegance that distinguishes them from their more solid British brethren. The operation of boring barrels was specially interesting. Two half round drills are started, one at each end of the steel blank that is to be transformed into a death dealing weapon. Copious lubrication is effected by sperm oil applied by small tubes running alongside the drills; the latter are fixed while the barrel revolves, and the *debris* is swept out by water flowing in in constant attendance on the progress of the drill. The drills meet in the middle with the precision of the two ends of a tunnel, the cutting of which has been entrusted to an engineer who knows his business Another particularly ingenious machine was engaged in cutting plugs for fuses from the solid rod. The rod revolved in a lathe, and a tool carrier having horizontal radial arms set at the height of the centres, was provided with the necessary cutters, etc., for performing the several operations that transformed the end of the plain rod into a finished plug. One movement of the attendant cut a thread for a length of about half an inch; a central hole was bored in the end of the rod and tapped almost simultaneously; a small sharp steel peg was applied by hand, and in a twinkling seized the newly cut thread and screwed itself in, being given a final twist by an appropriate tool on the carrier. Another movement, and the finished plug was severed from the rod and suffered to fall on the tray below the machine, a second being started ere it had ceased rolling. Outside the shops is a cupola for heating the larger guns previous to their being tempered. The firing is done with wood, as coke or coal is too rich in sulphur to be tolerated in contact with high-class steel. An oil pit hard by is used to dip the heated barrels in and complete the operation. The interest of the visitors was further aided by a trial of one of the guns that was made when the round of the shops had been finished, and some idea was gathered of the formidable character of the instruments with which the ingenuity of Mr. Maxim has provided us.

## MESSRS. EASTON AND ANDERSON.

While one party went to the Maxim Nordenfeldt Co.'s works, another betook themselves to those of the old-established engineering firm now known by the above-mentioned title. The work undertaken by Messrs. Easton and Anderson is of a varied character; it comprises the manufacture of much hydraulic machinery, in which they have a well-deserved reputation, as well as more modern developments in the shape of dynamos and similar electric gear. A large wood-working shop is attached, and is kept busy in pattern making for the foundries. A great deal of high class casting in iron, brass and special alloys, such as manganese bronze, Bull metal, etc., is done, and the importance of this part of the business was brought home to the visitors by the production of a casting in their presence. Among the interesting relics that have been collected is a gun of cast iron said to be of the fifteenth century with a breach-loading mechanism working on an eccentric, and showing evidence that in spite of the comparative crudeness of metal-working methods in those days, our remote ancestors knew how to produce clean castings. The only disadvantage of these ancient specimens of ordnance was that arising from the fact that the peril of the foe at whom they were directed sank into absolute insignificance when compared with the danger incurred by the intrepid person who

undertook to discharge them. The two risks were, in fact, in this respect complementary to each other, and gained by their juxtaposition.

THE ANNUAL DINNER.

After the visits to the various works, a move was made for the steamer, which was timed to leave Erith at five o'clock, and the return journey made to Greenwich, where, at the famous hostelry the "Ship," this event, most characteristically English of all the functions gone through, took place, and the usual *post prandial* oratory duly delivered. Some discrepancy of opinion was evident at this gathering, as the whole effort of the caterers had apparently been devoted to the advantage of the occupants of the high table, the ordinary members and such like uninteresting persons being fobbed off with cold fish, chilly *entrées*, and indifferent champagne. So marked indeed was this deficiency that one influential group of younger and more enterprising members adjourned at an early hour for a place where the conditions were more indubitably hygienic. It is perhaps doubtful whether it was quite wise to hold the dinner at a place once of suburban repute but now abandoned by all who can rank as *gourmets*, in spite of the undoubted preference due to a position moderately remote from the centres where air is rare and bad.

*Third day, Friday, July 22nd.*—The Ladies' Day was, as usual, deferred to the end of the meeting, and took the pleasant form of a trip up the river, in contradistinction to the more strictly business gathering down stream, which expended its energy in the viewing of works and similar places of technical interest. The start was mercifully deferred until 9-50 nominally, an extra ten minutes being accorded to the laggards. After a short trip to Windsor, the party, which must have numbered some three hundred, wended its way to the castle, and was conducted over the state apartments, finishing the round with a recital on the grand organ by R. Martin Ackermann, Esq. The luncheon had been arranged to take place at the Town Hall, by the kind permission of the Mayor, J. Brown, Esq., and copious as was the accommodation, it was severely taxed by the immense influx of members, of whom a large number were from other than the London section. Great satisfaction was expressed by these at the endeavours of their hosts, and after a portion had occupied the short time available in an inspection of the royal stables, of unique interest for all those with equine knowledge, the trip was completed by embarkation in launches, both steam and electric, to Cliveden, where tea had been prepared. The trip had been well selected, as the portion of the river traversed comprises the cream of the wooded portion of Thames scenery, and there are few rivers that can show finer samples of the more peaceful varieties of the picturesque. A little hitch occurred on the return journey, due entirely to the much larger attendance than was anticipated, as owing to the fact that a string of launches takes time to get through a lock, a great many minutes were wasted, so that the time fixed for departure was much overstepped by the President's launch. Fortunately Mr. Tyrer—*facile princeps* on these occasions—stepped into the breach, and a boat fortuitously present, and went post haste to Taplow station, where his diplomacy succeeded in delaying the departure of the special train, possibly to the disgust of those who had reached it in good time, but certainly to the contentment of the *elite* on the larger craft. The journey back to town was performed with the despatch and punctuality characteristic of the Great Western Railway, and the entire concourse dispersed at Paddington, and were absorbed in the mass of London, without formal leave taking, but with plenty of reciprocal good-will.

FUTURE MEETINGS.

Excellently as was the annual meeting engineered, it is amply apparent that a difficulty is arising from the excessive popularity of the excursions that have been arranged on this, as on other occasions. The London section, lacking the corporate spirit that distinguishes large provincial towns, responded but feebly to the whip that was sent to all its members on behalf of the fund guaranteeing the inevitable expenses, and it is an open secret that a call—over and above the amount promised—will have to be made upon the purses of the guarantors. This is wholly unsatisfactory. The position is precisely that indicated in our report of the last meeting of the London section, viz., that it is not reasonable to expect the rank and file who gain no advantage thereby to contribute to the general purposes fund, and in consequence of this those who call the tune must pay the piper. It would be far more wholesome if each member of the entertaining section were required to defray the expenses due to his attendance, and this sum, supplemented by the guarantee fund as heretofore, would provide for the cost of trips of any ordinary magnitude, without causing visitors (whom it would be inhospitable to put to expense other than that involved in their presence) to any further outlay. The meetings have proved so gigantic a success that they should not be lightly abandoned or curtailed, and some plan of this kind is necessary to prevent their becoming a burden on the few, instead of a bagatelle to the many.


## NOTICE.

LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of
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On usual trade terms.


## Correspondence.

***We do not hold ourselves responsible for the opinions expre our correspondents.*

*ANSWERS TO CORRESPONDENTS.*

B. Frères.—It has been attended to.

J. S.—We are still minus the amount due, and will write you furthe by a later post.

B. B.—Thanks for blocks. They have been returned.

W. F. L.—We have sent Vol. X. on. We await your confirmation of our la now.

P. B.—Thanks for notice. The change has been duly made.

## Trade Notes.

The British Association.—The sixty-second meeting Association will commence on August 3rd, 1892, under the pre of Sir Archibald Geike. The local secretaries for the meeti Pro. G. F. Armstrong, and Messrs. J. Harrison and F. G. Ogilv

A Paint Works Burnt.—A fire occurred on Tuesday last, oil, paint, and grease works of Messrs. Arch, Eadie and Co., street, Tradeston, Glasgow. Damage to the extent of £1,50 done. The fire originated on the ground floor, where a large q of inflammable goods were stored.

Activity in the Salt Trade.—Those interested in the gr industry of Cheshire will be gratified to learn that its activity greater than has been the case for a considerable time past. pans are working than at any period during the past year, additional number will shortly be started. This briskness is to continue throughout the ensuing year.

Proposed Sewage Works.—Major-General Phipps Carey, inspector of the Local Government Board, held an inquiry Houldsworth Institute, Reddish, last week, into an application Reddish Local Board for sanction to borrow £2,500. for w sewerage, and £1,710. for works of private street impro Several members, including the chairman of the Local Bo present. Plans were fully discussed, and there was no objectio

Fatal Explosion.—At the sulphite works of Ober Lesch Sprottan, an explosion of sulphurous acid took place at the when some visitors were shown over these works. One of Herr Klemm, a neighbouring papermaker, was killed, but t visitor, the director, and a workman, though seriously hurt, hoped neither lose their lives nor their eyesight.

The Institute of Chemistry Exmination.—At the exa in Practical Chemistry for admission to the Institute, held from 11th to Friday, 15th July, thirty-seven candidates presente selves of whom the following nineteen were successful: Mr Baly, Mr. F. J. Bloomer, Mr. A. C. Chapman, Mr. J. C. Chor F. Dent, Mr. F. E. Francis, Mr. A. F. Fryer, Mr. F. J. Ham E. E. Johnson, Mr. T. Kendrew, Mr. C. Leigh, Miss E. J. Ll H. H. Mann, Mr. C. H. New, Mr. T. H. Norris, Mr. W. C N. S. Rudolf, Mr. W. D. Sawers, and Mr. A. E. Wareing.

Scalded to Death.—An inquest was held last week on of a man employed by Messrs. Rumney, at their chemical w Ardwick. The man was stirring up the contents of a pan co acetate of lime liquor, which was scalding hot. While he engaged, the "stirrer" slipped and he fell into the pan. He s for help, and a workmate came to his assistance and helped of the pan. He was so badly scalded that he died from his inj same night. While he was in the Infirmary, to which insti was taken, he told his wife that it was through his stirrer slipp he fell into the pan.—A verdict of accidental death was returne

Ve much regret having to announce the death of Mr. te, F.I.C., who, for the past twenty-five years, has minent place amongst the technological chemists of his formed that the brother of the deceased, will continue nalytical and consulting chemist, under the style of and Co., at their laboratories in Liverpool.

WORKS AT BAKU.—Owing to the alarming rate at a epidemic has been spreading in the oil-producing , the people are leaving in thousands. The sudden , thus created, is compelling producers to close their rity of them now being stopped. The supplies for the will of course fail, and many German firms have ian oil from their price lists.

BLUE.—Messrs Leopold Cassella and Co. has intro- ect dye for cotton which is easily discharged to a pure ffected by heat, in hot baths, drying and finishing, ht, either natural or artificial, washing, and acids. It a mordant for basic dyes. For dyeing it is boiled of either 20% Glauber's salt or sodium chloride. It a mixture with other Diamine colours requiring the *i.e.*, 5% soda to 20% $Na_2SO_4$. With 1% on cotton obtained, and on half silk with the addition of 10% $O_4$, and ¾% of the dye, very delicate tints are obtained.

# Market Reports.

## R AND AMMONIA PRODUCTS.

remains quiet, 90% being saleable at 1s. 8d., while r.ly be disposed of at prices varying from 1s. 3d. to l. Pitch is firm, and a considerable fillip has been bolic acid industry. In anthracene only a very small n doing. The price remains nominally, 10d. for 30% r 30% B, but lower prices would have to be taken if force business.

ulphate of ammonia is unaccountably slow, and the which can be come to is that buyers, be they consumers designedly withhold their orders in the hope of r prices by these tactics. It cannot be denied that here and abroad, have almost entirely run out of king such an extraordinary course as the present one, risk of the difficulty of finding supplies at an urgent must surely be prompted by the advice of interested here have been sales made at Hull during the past week: and for prompt shipment, which shows clearly enough f sulphate is not so low as speculators would have pro- Beckton is nomiually £10., but Hull, Leith, and e called £9. 17s. 6d. as a minimum, and varying , according to the gumption of the seller.

## PORT ON MANURE MATERIAL.

inquiry and a moderate business passing, but prices e same as on date of our last report.

Florida Land rock, 75/80%, offers at 9d. per unit in U.K., but we do not hear of business at the price. eace River rock offers at 7½d. per unit, Carolina River nd Carolina Land rock at 7d. per unit c.i.f. to U.K. in itions for Somme phosphates are without alteration. ould probably buy 80% Canadian rock, delivered terms, delivered Mersey.

e of cargoes offering, we do not hear of any business in es. For shipment £4. 5s. is probably nearest value. 70%, nett Hamburg terms required, for cargoes of e ash. Sales of crushed Kurrachee bones have been ent at £4. 2s. 6d., ex quay Liverpool, and this price still do, though owing to scarcity of River Plate cargoes quiry for East Indian bones. Nearest value of fair Bombay bone meal for shipment is £4. 5s., ex quay . 7s. 6d. paid for 100 tons very fine quality, arrived. ng bones are selling at £3. 15s., and parcels of charring rdly now fetch over £4., there being less inquiry.

te remains firm but quiet, at 8s. 3d. for ordinary quality, r fine. Due cargoes are worth 8s. 1½d. to 8s. 2¼d., , according to size, and refined about 3d. per cwt. more. sailings may be had at 8s. 4½d. to 8s. 6d., and later d. to 8s. 7½d. per cwt.

## LIVERPOOL OIL AND COLOUR MARKET.

LIVERPOOL, WEDNESDAY.

OILS.—Palm oil continues firm owing to the shortness of supply, but sales are few. Lagos being done at £20. 15s. per ton. Olive has been brisker during the week, but in the cheaper grades chiefly, these being disposed of the market is again firm at £33. to £38. per ton. Linseed continues steady, with a fair demand, at last week's quotations. Cottonseed is a shade weaker for Liverpool refined, it being quoted 19s. 3d. American is still unchanged at 20s. per cwt. Castor oil: Good seconds Calcutta has ruled at 2½d. most of the week, only a few sales ex-quay having been made at 2⅜d. First pressure French continues at 2$\frac{11}{16}$d. per lb. Tallow continues absolutely featureless, either in business or prices. Resin, common, is now offered at 3s. 7½d. per cwt., the demand has been rather better, but the market generally, is dull. Spirit of turpentine has also declined, 22s. 9d. to 23s. per cwt. being now quoted, at which it is steadily held. Petroleum: American 5⅛d. to 6¼d. according to quality; Russian refined, 4⅜d. to 4½d. per gallon.

COLOURS without change. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s., medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: common, £6.; medium, £10.; finest, £20.

## THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron quiet. Scotch warrants closed at 41s. 11d. cash. Middlesbrough 39s. cash, and Hematite 50s. cash. Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s closed at £44. 17s. cash, and £45. 7s. 6d. to £45. 15s. three months. Tin quiet: Straits closed at £94. 5s. to £94. 7s. 6d. cash, and £94. 5s. to £94. 15s. three months. Australian, £94. 7s. 6d. cash. English ingots, £97. 10s. to £98. Lead firm: Spanish, £10. 8s. 9d.; English, £10. 12s. 6d. to £10. 15s. Silesian spelter, ordinary, £21. 12s. 6d. Quicksilver, first hands, £7. 2s. 6d., second hands, £6. 18s. 6d. *Copper shares* dull: Cape 1½ to 1¾; Copiapo, 2¼ to 2½; Libiola, 2¾ to 3; Mason and Barry, 3⅝ to 3⅞; Rio Tinto, 15$\frac{13}{16}$ to 15$\frac{15}{16}$; Tharsis, 4⅝ to 4⅞; Namaqua, ¾ to 1; Panulcillo, ⅜ to ½.

WOLVERHAMPTON, WEDNESDAY.—Reports brought to 'Change this afternoon showed that the furnaces and mills and forges are fairly well engaged upon repeat orders recently booked. Prices all round are maintained. Marked bars £8., medium £7., common £5. 12s. 6d., galvanised corrugated sheets £11. 15s., black sheets, singles £7., doubles £7. 5s., trebles £8.; hoops £6. 12s. 6d., gas tube strip £6., Staffordshire all mine hot blast pigs 62s. 6d, cinders 37s. 6d., Northamptons 44s. 6d.

GLASGOW, WEDNESDAY.—Market easier, with small business. Scotch done at 41s. 11d., 42s., and 41s. 11½d. cash, also at 42s. 2½d. and 42s. 1d. one month, closing with buyers at 41s. 11d. cash, and 42s. 1d. one month, sellers ask ½d. more. Middlesbrough closes with buyers at 38s. 6d. cash, sellers ask 39s. 9d. Hematite closes with buyers at 49s. 6d. cash, sellers ask 50s. 6d.

## MISCELLANEOUS CHEMICAL MARKET.

Business generally continues quiet. Demand for the staple products of the alkali trade is rather below the average, but prices all round are maintained, and spot quotations are as follows:—Caustic soda, 77%, f.o b. Tyne, £11. 15s.; f.o.b. Liverpool, 74%, £11. 5s.; 70%, £10. 5s.; 60%, £9. 2s. 6d. Cream, 60%, £8. 17s. 6d. 10 ton lots. In soda ash the price is still 1⅜d. per degree, f.o.b., for Leblanc makes, and $\frac{15}{16}$d. for Solvay ash, though business has been done on forward contracts below the latter figure. In bleaching powder there is no change so far as price is concerned, and £7. 10s. nett f.o.r. makers' works is present value. Chlorate of potash is without improvement in value; makers' price 6¾d., and resellers 6½d. Chlorate of soda nominally 8d., and still scarce for early delivery. In potash, caustic and carbonate, the supply and demand are well balanced, and there is no material alteration in values. Recovered sulphur still at a discount, £4. 15s. being nearest spot value, f.o.r. makers' works. Sulphate of copper is also without improvement at £15. per ton, f.o.b. For carbolic acids the demand has slightly eased off again, it having been found that inquiry was considerably in excess of actual demand. Crystal, 39/40°, is 5¾d. per lb., and 34/35° 4¾d. to 5d. per lb.

Brown acetate of lime is steady in value at £5. 15s. to £6. per ton respectively for prompt and forward delivery. Acetate of soda has advanced to £7. 10s. per ton c.i.f. In prussiate of potash 9¾d. to 10d. per lb. are current quotations. Sulphocyanides are neglected. In bichromates there is the usual amount of business being done, and there are no alterations in prices. Oxalic acid, 3d. nett per lb. is nearest spot value.

## THE LIVERPOOL MINERAL MARKET.

The firmness reported in our market last week has been well maintained. Manganese: There have been a few more arrivals this week. They have, however, gone into consumption; prices continue unaltered. Borate, 7d. per lb.; sulphate £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite: Raw lump, stocks large; prices quiet. Raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand) continues brisk at full figures; lump 20s., seconds 16s., and thirds 12s. French chalk: Arrivals are still limited, whilst a steady business is doing at full prices. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump scarce at 90s. to 95s.; nuts, 70s. to 80s.; whilst finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone steady. Iron ore steady; Bilbao, more offering; Irish and Cumberland easier. Santander and manganiferous, there is more doing. Emerystone: Best brands sought for at full prices. No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal firmer. Chrome ore remains steady; prices firm. Antimony ore and metal flat; prices firmer. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. 10s. Calamine quiet. Strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese somewhat easier, but prices are unchanged. Plumbago brisk. Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady; common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) steady; finest quality 22s. to 23s.

## TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals continue steady. Bleaching powder is so scarce as to be almost unobtainable; price firm at £7. 10s. per ton f.o.b. nett.

Bleaching powder, softs, £7. 10s. per ton, and hards, £7. 15s. per ton; caustic soda, 77/76%, £11. 15s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £5. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton, in 10 ton lots; silicate of soda, 75° Tw. £3. per ton, 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per ton; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 7d. per lb. less 6%; pearl hardening, £3. 10s. per ton nett cash; pure white sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta crystals, £19. per ton; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; hydrate of barium, £11. per ton.

South Durham salt unaltered; price being 9s. 6d. to 10s. per ton, f.o.b. Tees.

Coal: Demand keeps good, and in the case of steam and gas coal prices may be said to be improving. Best Durham gas coal, 9s. to 9s. 6d. per ton; best Northumberland steam firm at 10s. 6d. per ton; small steam, 4s. to 4s. 3d. per ton; Bunker and manufacturing coals, unaltered. Coke quiet at about 15s. to 15s. 6d. per ton.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

As an indication of the widespread dulness of trade in this quarter, most of the works resumed operations yesterday only, after the great annual holidays, thus making a break of about a week and a half, instead of a bare half week, which is the begrudged allowance when orders are plentiful and pressing. Some of the dyeing and cal ing works do not reopen till Thursday, taking the full fortnigh

On the sales market here there is no improvement as yet; some further deterioration, and it is said that a few holders of have been parting at prices under quotations. The weather i its warmest in our experience of the season so far as it has this will affect the manufacture of certain chemicals now With the above, reservation prices stand unchanged.

The feeling in sulphate of ammonia is very depressed and may be stated at £9. 15s. to £9. 17s. 6d., with very free offer higher mark.

Solid paraffins (scale and wax) are still boycotted by consu the impending meeting of makers and buyers must result compromise, at least. The other paraffins are reported as sl slight improvement.

Chief prices current are:—Soda crystals, £2. 17s. 6d., ne alum in lump, £5. 10s., nett Glasgow; soda ash, 1⅜ Tyne; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett L bicarbonate of soda, 5 cwt. casks £6. 7s. 6d. and 1 cwt. casks nett Liverpool; refined alkali, 1⅝d., nett Tyne; bleaching £7. 10s. nett Tyne; saltcake, 36s. 6d.; borax, refined, £29., and boracic acid, £37. 10s. nett Glasgow; bi of potash, 4½d. nett, for Scotch and English deliveries (fo 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, fo and English deliveries (for export 3½d. nett f.o.b. Gl chlorate of potash, 6⅝d., less 5% any port; nitrate of soda, 8 8s. 6d.; sulphate of ammonia, £9. 15s. to £9. 17s. 6d. f.o.b. salammoniac, first and second white, £35. and £33., le any port; sulphate of copper, £15. 5s., less 5% Liverpool; scale (hard), 2$\frac{15}{16}$d., and soft 2$\frac{15}{16}$d. to 3d. per lb.; paraff 120°, semi-refined, 3⅝d. to 4d.; paraffin spirit (naphtha) gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according at works, for Scotch buyers (English sales about 1d. ditto (lubricating), 865°, £3. 5s. to £3. 15s., 885°, £4. 10s. and 890/895°, £5. to £7. Week's imports of raw sugar at G were 20,865 bags.

# New Companies.

ALBRIGHT AND WILSON, LIMITED.—This company was registered on the with a capital of £400,000., in £100. shares (1,000 pref.), to acquire, take going concern, and carry on the business of manufacturing chemists carr Messrs. A. Albright, J. E. Wilson, W. A. Albright, G. S. Albright, J. W and G. E. Wilson, under the style or firm of "Albright and Wilson," at in the county of Worcester; and with a view thereto to enter into an agree made between the above-named vendors of the one part, and the comp other part. The subscribers are:—

A. Albright, Oldbury, near Birmingham, chemical manufacturer.....
J. E. Wilson, Oldbury, near Birmingham, chemical manufacturer ...
W. A. Albright, Oldbury, near Birmingham, chemical manufacturer .
G. S. Albright, Oldbury, near Birmingham, chemical manufacturer .
J. W. Wilson, Oldbury, near Birmingham, chemical manufacturer...
H. L. Wilson, 18, Whelley's-lane, Birmingham, manufacturing chem
J. F. Albright, Mansion House Buildings, E.C., civil engineer .....

HARRIS'S OIL REFINING CO., LIMITED.—This company was registe 20th inst., with a capital of £25,000., in £1. shares, to investigate, test, and, subject thereto, to acquire from Mr. J. N. Harris a secret process for facture of refined oil and all improvements therein, and with a view there into the contract mentioned in clause 3 of the articles. The subscribers a

J. T. Thompson, 116, Nevill-road, Stoke Newington .....
W. E. Savory, 20, Tintern-street, Clapham, S.W., clerk.....
E. Lydikker, Harpenden Lodge, Herts .....
J. Pearce, Stanhope House, Kenway-road, S.W., clerk .....
W. H. Glencross, Virginia House, Walthamstow, clerk .....
C. H. Watson, 206, Hill-street, Walworth .....
H. G. Philipps, 177, Fentiman-road, S.W., solicitor.....

SILICATE PAINT CO., J. B. ORR AND CO., LIMITED.—This company wa on the 19th inst., with a capital of £100,000., in £5. shares, to acquire, tak going concern, and carry on the business of manufacturers of and dealers paint and other paints carried on at Charlton, in the county of Kent, at c the Silicate Paint Co., then by Mr. J. B. Orr and others, and more rec company now being wound up; and with a view thereto to adopt an dated July 15th, 1892, between Mr. F. Seager Hunt, M.P., of the one par J. N. Winch (for the company) of the other part. The subscribers are:—

Major-General W. B. Barwell, Charlton, Kent .....
F. Seager Hunt, M.P., 7, Cornwall-road, S.W.....
E. Masson, 149, Church-lane, Charlton .....
R. E. Robertson-Ramsay, 9, Wellington-road, Charlton.....

Vatson, 30, Delafield-road, Charlton ..... 1
s, 38, Calvert-road, East Greenwich ..... 1
y, Dacre House, Arundel-street, W.C., solicitor ..... 1
ith, Dacre House, Arundel-street, W.C., accountant ..... 1
inch, B.A., 30, Gledstanes-road, West Kensington ..... 1

NDON CLEANING CO., LIMITED.—This company was registered on the ith a capital of £10,030., in £1. shares (of which 30 are founders'), to tain machinery for the extraction of grease from skins, leather, etc.; to nefit of certain inventions from Mr. F. N. Turney; to enter into the entioned in clause 3 of the articles, and to carry on the business of tors, skiver makers, leather dressers, tanners, etc. The subscribers are:

| | Shares. |
|---|---|
| urney, Sherwood Rise, Nottingham, leather dresser | 1 |
| illiams, Wheeler Gate, Nottingham, solicitor | 1 |
| n, St. Peter's Church Walk, Nottingham, accountant | 1 |
| s, 5, Baker-street, Nottingham, accountant | 1 |
| ylor, 18, Cromwell-street, Nottingham, lace manufacturer | 1 |
| oigne, 37, Sherbrooke-road, Nottingham, clerk | 1 |
| r, Cropwell Butler, Notts | 1 |

# The Patent List.

*is compiled from Official sources in the Manchester Technical , under the immediate supervision of George E. Davis and Davis, who report professionally upon the value of Chemical*

## APPLICATIONS FOR LETTERS PATENT.

**ig Gas.** A. Noteman. 12,716. July 11.
**uminium.** H. J. Allison. 12,719. July 11.
**wage Pipes.** F. S. Mayo. 12,724. July 11.
**re of Sulphuric Acids.** E. J. Barbier. 12,726. July 11.
**: Extraction of Zinc.** Siemens Bros. and Co. 12,731. July 11.
**Protective Paints for Ships.** L. Pflug. 12,732. July 11.
**Production of Metallic Antimony.** C. D. Abel. 12,733. July 11.
**Artificial Stone.** W. P. Thompson. 12,756. July 12.
**Combustion of Carbonaceous Fuel.** E. A. Ebb. 12,762. July 12.
**Smoke Consumer and Fuel Economiser.** L. Delaney and P. Kershaw. 12,765. July 12.
**Smoke Consumers.** J. M. Cotta. 12,784. July 12.
**Double Salts of Quinine.** J. C. Mewburn. 12,811. July 12.
**Manufacture of Chlorine.** H. W. Wallis. 12,878. July 13.
**Improved Firebrick.** H Faija. 12,913. July 14.
**Treating Zinc Ores and Recovering Bye-Products.** W. Wright and J. B. Hammond. 12,920. July 14.
**Indigo Dyeing.** Read Holliday and Sons, Ltd. and H. Bindschalder. 12,921. July 14.
**Manufacturing Oil Gas.** The Northern Counties Hydro-Oxygen Gas Co., Ltd. and P. B. W. Globe. 12,924. July 14.
**Indelibly Marking Soap Cakes.** G. D. MacDougald. 12,974. July 14.
**Electrolytic Production of Caustic Soda and Potash.** C. A. Burghardt. 12,977. July 15.
**Manufacture of Ferric Chloride from Waste Products.** J. H. Kidd. 12,985. July 15.
**Supplying Fuel to Gas Producers** J. W. Armstrong. 13,007. July 15.
**Manufacture of Chlorine.** H. W. Wallis. 13,047. July 15.
**Manufacture of Washing Soap.** W. P. Thompson. 13,081. July 15.

# Gazette Notices.

## PARTNERSHIPS DISSOLVED.

S. CROSSLEY AND T. E. SYKES, under the style of Crossley Bros., Ashton-under Lyne, drysalters, as far as regards T. E. Sykes.

J. BRIGGS, F. S BRIGGS, AND R. W. BRIGGS, under the style of Richard Briggs & Sons, Buxton and Clitheroe, lime and limestone merchants, as far as regards J. Briggs.

## BANKRUPTCY ACTS, 1883 and 1890.

### Adjudication.

KEENES, AMOS GEORGE (trading as The South London Manure Co.), Hinton-road, Camberwell.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## ONDON.

*: ending July 16th.*

| | | |
|---|---|---|
| | 10 cks. | A. & M. Zimmermann |
| | 10 pkgs. | J. Owen |
| | 1 | T. Palmer |
| | 320 c. | Arnati & Harrison |
| | 14 cks. | Ohlenschlager Bros. |
| — | | |
| | 62 t. | J. Bamber |
| | 20 | H. R. Merton & Co. |
| | 50 | J. Bamber |
| | 22 | H. Bath & Son |
| | 9 | H. Rogers, Son, & Co. |
| | 6 | B. Kuhn |
| — | | |
| | £500 | Bell's Asbestos Co., Ltd. |
| | 30 | Phillipps & Graves |
| | 40 | G. Rahn & Co. |
| | ,156 | T. Ronaldson & Co. |
| | 235 | W. Byford |
| | 86 brls. | Phillipps & Graves |
| | 23 cks. | W. Harrison & Co. |
| | 69 | T. & W. Farmiloe |
| | 19 | S. H. Willoughby |
| | 4 | J. L. Lyon & Co. |
| | 44 | Magee, Taylor, & Co. |
| — | | |
| | 100 pkgs. | W. G. Blagden |
| **IC—** | | |
| | 7 c. | J. Walker & Co. |
| | 982 | Williams, Torrey, & Co., Ltd. |
| | 6 | Stiebel Bros. |
| | 384 | L. & I. D. Jt. Co. |
| | 30 | Prop. Bull Wf. |
| | 12 | Phillipps & Graves |
| | 40 | Wallace Bros. |
| | 9 | Anderson, Weber, & Smith |
| | ,, 37 | Lewis & Peat |
| | ,, 10 | S. Figgis & Co. |
| | Madagascar, 289 | Proctor Bros. |
| | ,, 35 | Hoare, Wilson, & Co. |
| | ,, 128 | L. & I. D. Jt. Co. |
| | France, 19 | Lewis & Peat |
| | E. Indies, 190 | Ralli Bros. |
| | ,, 60 | L. & I. D. Jt. Co. |
| | Portugal, 10 | ,, |
| | Tamatave, 22 | ,, |
| | E. Indies, 32 | Lewis & Peat |
| **Carbonic Acid—** | | |
| | Holland, 15 cks. | Volcanic Æration Co. |
| **Caustic Potash—** | | |
| | France, 60 c. | Northcott & Sons |
| | ,, 20 | J. A. Reid |
| **Chemicals** *(otherwise undescribed)* | | |
| | Germany, 32 pkgs. | A. & M. Zimmermann |
| | ,, 5 | 3 cks. £65 Phillipps & Graves |
| | ,, 4 | C. Atkins & Nisbet |
| | ,, 98 | T. H. Lee |
| | ,, 10 | Domeier & Co. |
| | ,, 31 | F. Smith |
| **Cream of Tartar—** | | |
| | France, 3 pkgs. | E. W. Carling & Co. |
| | Spain, 2 cks. | W. C. Bacon & Co. |
| | Holland, 18 | 6 Middleton & Co. |
| | ,, | 12 B. & F. Wf. Co., Ltd. |
| | France, 12 | ,, |
| | ,, 15 | W. C. Bacon & Co. |
| | ,, 5 | M. Ashby, Ld. |
| | ,, 6 | Smith, Abbott, & Co. |
| | Italy, 8 | Thames S. T. & L. Co., Ltd. |
| | France, 2 | Ross & Deering |
| | ,, 2 | J. Puddy & Co. |
| | Italy, 22 | Howards & Sons |
| **Creosote—** | | |
| | Germany, 2 cs. | Phillipps & Graves |
| **Dyestuffs—** | | |
| **Aniline** | | |
| | Germany, 1 pkg. | H. Lambert |
| **Annatto** | | |
| | U. States, 25 pkgs. | Gillespie Bros. & Co. |
| **Anthracene** | | |
| | Spain, 182 pkgs. | Burt, Boulton, & Co. |
| **Argols** | | |
| | Italy, 54 pkgs. | Thames S. T. & L. Co., Ltd. |
| | ,, 1,066 | B. Jacob & Sons |
| **Cochineal** | | |
| | Canary, 4 | W. M. Smith & Sons |
| | Canaries, 30 | Swanston & Co. |
| **Cutch** | | |
| | Singapore, 740 pkgs | J. Swire & Sons |
| **Extracts** | | |
| | Canada, 240 pkgs. | A. J. Humphrey |
| | Denmark, 10 | Bailey & Leetham |
| | ,, 4 | R. J. Fullwood & Bland |
| | Norway, 1 | Johnson & Jorgensen |
| | Italy, 2 | F. Stahlschmidt & Co. |
| **Gambier** | | |
| | Singapore, 169 pkgs. | Elkan & Co. |
| | ,, 441 | Beresford & Co. |
| | ,, 81 | H. Lambert |
| | ,, 1,972 | Leach & Co. |
| | ,, 1,808 | R. & J. Henderson |
| | ,, 3,071 | L. & I. D. Jt. Co. |
| | ,, 1,077 | Cox, Patterson, & Co. |
| | ,, 686 | Hoare, Wilson, & Co. |
| **Indigo** | | |
| | Germany, 1 cs. | N. & R. Collyer |
| | E. Indies, 31 chts. | L. & I. D. Jt. Co. |
| | ,, 11 | Stansbury & Co. |
| **Madder** | | |
| | Holland, 15 pkgs. | Phillipps & Graves |
| **Myrabolams** | | |
| | E. Indies, 970 pkgs. | Lucas & Spencers Wf. |
| | ,, 2,900 | W. Shelcott |
| **Orchella** | | |
| | E. Indies, 28 pkgs. | Major & Field |
| | Portugal, 62 | J. Silva & Co. |
| **Saffron** | | |
| | Spain, 1 pkg. | Zuluetta & Co. |
| **Sumac** | | |
| | Italy, 250 pkgs. | Brown & Elmslie |
| | ,, 1,200 | J. Kitchin, Ltd. |
| **Tanners' Bark** | | |
| | B. Ayres, 6½ t. | Brookes & Green |
| | Belgium, 50 | Leach & Co. |
| | Germany, 50 | Beresford & Co. |
| | U. States, 13 | W. A. Bowditch |
| **Turmeric** | | |
| | E. Indies, 93 pkgs. | Major & Field |
| | ,, 100 | L. & I. D. Jt. Co. |
| **Farina—** | | |
| | Germany, 1 pkg. | T. H. Lee |
| | Holland, 100 | Ohlenschlager Bros. |
| | ,, 80 | J. Knill & Co. |
| | Singapore, 414 | A. B. Curtis & Co. |
| **French Chalk—** | | |
| | Denmark, £80 | Williams, Torrey, & Field |
| **Glucose—** | | |
| | U. States, 150 pkgs. | 906 c. Williams, Torrey, & Co. |
| | ,, 520 | 610 c. J. Barber & Co. |
| | ,, 60 | 330 H. Johnson & Sons |
| | ,, 240 | 1,320 Prop. Chmbln.'s Wf. |
| | ,, 250 | 250 Ohlenschlager Bros. |
| | ,, 1,300 | 1,483 R. G. Hall & Co. |
| | ,, 500 | 500 L. & I. D. Jt. Co. |
| | Germany, 3 | 32 J. Knill & Co. |
| | U. States, 2,000 | 2,000 ,, |
| **Glycerine—** | | |
| | Germany, £25 | T. H. Lee |
| | France, 2,000 | Williams, Torrey, & Co. |
| | Germany, 30 | T. Palmer |
| | Holland, 400 | Spies Bros. & Co. |
| **Lead Acetate—** | | |
| | Germany, 15 pkgs. | T. Palme |
| **Manure—** | | |
| | Holland, 250 t. | Anglo Contl. G. Wks. |
| | France, 8 | J. Burnett & Sons |
| | Sydney, 488 | Anglo Contl. G. Wks. |

**Methyl Alcohol—**
Holland, 100 pkgs. Lister & Biggs
Belgium, 6 W. G. Blagden

**Mica—**
U. States, £35 Knight & Morris
E. Indies, 16 C. F. Gerhardt
France, 17 Flageollet & Co.

**Painters' Colours—**
Germany, 2 pkgs. 5 cks. T. H. Lee
" 14 L. & I. D. Jt. Co.
Holland, 5 W. H. Carey & Sons
Belgium, 4 J. L. Lyon & Co.
Germany, £10 H. Lambert
France, 19 Bennett S. S. Co., Ltd.
" 20 Flageollet & Co.
" 1 Hernu, Peron, & Co.
Germany, 20 G. Steinhoff
U. States, 159 "
Holland, 4 J. Owen
" 6 Phillipps & Graves
Sydney, 28 cks. Gellatly, Hankey, & Co.
Germany, 3 A. Chapman & Co.
" 2 12 cs. £159. Phillipps & Graves
" 9 H. Lambert

**Phosphate Rock—**
Canada, 300 t. R. M. Holt & Co.
Holland, 20 Anglo-Contl. G. Wks.
France, 140 "
Belgium, 170 Lawes Manure Co., Ld.

**Plumbago—**
Holland, 9 cks. B. Gallaway
Germany, 71 T. H. Lee
" 71 brls. J. Thredder, Son, & Co.

**Potash—**
Canada, 85 c. S. Ward & Co.
" 212 Charles & Fox
France, 35 pkgs. Weatherley, Mead, & Co.
" 200 c. F.W. Berk & Co. Ltd.
" 178 Petri Bros.

**Potassium Bicarbonate—**
Germany, 3 cks. A. & M. Zimmermann
Holland, 4 "

**Potassium Carbonate—**
France, 47 c. J. A. Reid

**Potassium Sulphate—**
France, 27 cks. Weatherley, Mead, & Co.
Belgium, 66 pkgs. F.W. Berk & Co., Ltd.

**Pyrites—**
Spain, 750 t. Anderson, Anderson, & Co.

**Saltpetre—**
Germany, 13 cks. Craven & Co.
" 70 T. Merry & Sons
" 64 J. Hall & Son
E. Indies, 611 bgs. Browne & Elmslie
" 2,046 Ralli Bros.
" 620 E. D. Sassoon & Co.
" 674 Lucas & Spencer's Wf.
Germany, 197 Smith, Sundius, & Co.
R. I., 202 L. & I. D. Jt. Co.

**Sodium Acetate—**
France, 10 cks. S. F. Waters & Co.
" 15 pkgs. H. Lorenz
Belgium, 13 Magee, Taylor, & Co.

**Sodium Salicylate—**
Holland, 10 pkgs. R. Morrison & Co.

**Sodium Silicate—**
Holland, 25 cks. Spies Bros. & Co.
" 25 J. Barber & Co.

**Stearine—**
France, 90 bgs. Beresford & Co.

**Sulphur—**
Italy, 400 t. Brandram & Co.
" 300 W. C. Bacon & Co.

**Talc—**
E. Indies, £675 E. Davis & Co.

**Tallow—**
Queensland, 42 cks. Hicks, Nash, & Co.
" 30 N. Z. L. & M. A. Co.
" 410 Australian Meat Co.
" 209 Goad, Rigg, & Co.
" 16 Leach & Co.
" 5 Anning & Cobb
Melbourne, 19 Elkan & Co.
Sydney, 115 Leach & Co.
N. Zealand, 1,611 cks. J. Greig
U. States, 100 cks. Fairclough, Dodd, & Jones
" 2 Beresford & Co.
N. Zealand, 85 Flack, Chandler, & Co.
" 15 Low, Sons, & Bedford
Sydney, 192 Cuthbert & Hall
" 108 J. Greig
France, 28 bgs. H. Hill & Sons
Sydney, 202 J. Morrison & Co.
" 295 Elkan & Co.
" 194 A. B. Curtis & Co.
" 176 Pillow, Jones, & Co.
" 91 Wilkie & Soames
N. Zealand, 74 Culverwell, Brooks, & Co.
" 2 Bowron Bros.
Sydney, 86 Brown & Elmslie
" 727 Horne & Co.

**Tartaric Acid—**
Holland, 33 pkgs. Middleton & Co.

**Ultramarine—**
Belgium, 5 pkgs. W. Harrison & Co.
Holland, 6 cs. Hernu, Peron, & Co.

**Varnish—**
U. States, 73 pkgs. Williams, Torrey & Co.
" 10 Randall Bros.
France, 26 Flageollet & Co.
Belgium, 6 Stobbs, Wilson & Co.
U. States, 6 L. & I. Dk. Co.

**Vermilion—**
Germany, 4 cs. Phillipps & Graves

**White Lead—**
Holland, 1 ck. Phillipps & Graves
Germany, 13 cks. H. Lambert
" 30 Randall Bros.
" 20 Petri Bros.
" 62 H. Lambert
" 21 S. H. Willoughby
" 25 W. A. Rose & Co.
" 20 Colthurst & Harding
Holland, 22 M. Ashby, Ltd.

**Zinc Oxide—**
Holland, 9 brls. J. Owen
" 52 M. Ashby, Ltd.
Germany, 20 cks. Beresford & Co.

## LIVERPOOL.

*Week ending July 14th.*

**Acetate—**
Dunkirk, 1 cs.

**Acetate of Lime—**
Halifax, 2,662 bgs. Bryce, Junor & White

**Acetic Acid—**
Rotterdam, 5 cks. 10 botls.

**Aluminium—**
New York, 5 bxs. Pickford & Co.

**Barytes—**
Antwerp, 5 cks.
Rotterdam, 23

**Boracic Acid—**
Leghorn, 54 cks.

**Borax—**
Havre, 40 cks. Cunard S. S. Co.

**Carbolic Acid—**
Rotterdam, 50 cks.

**Caustic Potash—**
Dunkirk, 23 dms. 10 cks.

**Chemicals** (*otherwise undescribed.*)
Bremerhaven, 1 kg.

**Colours—**
Bremerhaven, 4 cks.
Havre, 74 pkgs. Cunard S. S. Co.
Antwerp, 5 brls. 6 cks. J. T. Fletcher & Co.
Rotterdam, 33 5 cs.
Hamburg, 10 D. Currie & Co.
Sierra Leone, 4 bgs.

**Cream of Tartar—**
Barcelona, 2 pps.

**Dyestuffs—**
**Argols**
Oporto, 34 cks. German Bank of London
**Cochineal**
Gr. Canary, 20 bgs. Widow, Duranty & Son
**Cutch**
Rangoon, 1,400 bxs.
**Divi Divi**
Savanilla, 246 bgs.
**Extracts**
New York, 1 kg.
Bilbao, 23 cs. Bank of Bh. N. America
Baltimore, 50 brls. Mucklow & Co.
" 12 R. Schlosser & Son
**Gambier**
Singapore, 450 bls.
**Myrabolams**
Bombay, 484 bgs. D. Sassoon & Co.
" 240
**Saffron**
Valencia, 1 cs.
**Sumac**
Palermo, 420 bgs. 440 pkgs.
" 150 J. Kitchen & Co.
**Turmeric**
Bombay, 118 bls. E. D. Sassoon & Co.
**Valonia**
Constantinople, 1,345 bgs.

**Farina—**
Amsterdam, 50 bgs.

**Glycerine—**
Rotterdam, 13 cs.

**Manganese—**
Poti, qty.

**Naphtha—**
New York, 3,580 brls.

**Nitrate—**
Rotterdam, 8 cks.

**Ochre—**
Bordeaux, 15 cks.
Rouen, 155 Co-op. W'sale. Society

**Paint—**
Boston, 30 cs. M. Nicol & Co.
Dunkirk, 10 dms. 1 kg.

**Phosphate—**
Montreal, 227 t.

**Phosphate Rock—**
Coosaw, 3,240 t.

**Pitch—**
Amsterdam, 13 cks.

**Plumbago—**
Hamburg, 14 cs.

**Potash—**
Montreal, 7 brls. J. Bellhouse Dillon
Hamburg, 10 cks.
Rouen, 50 Co-op W'sale. Society, Ld.

**Pyrites—**
Huelva, 1,908 t. Matheson & Co.

**Rosin—**
Savannah, 3,000 brls.
New York, 500

**Salicylic Acid—**
Hamburg, 5 cs.

**Salt—**
Hamburg, 220 t. D. Currie & Co.

**Saltpetre—**
Hamburg, 50 brls.
Calcutta, 1,252 bgs.

**Soap—**
Leghorn, 425 bxs. Brown Brs & Co.
" 50 brls. Baring Brs.
" 800 bxs. Weaver & Sterry
" 70 cs.
Philadelphia, 3 2 crts. Ayrton & Saunders
New York, 50 bxs. E. Thompson

**Soapstone—**
Genoa, 508 bgs.
Bordeaux, 250 G. G. Blackwell
Philadelphia, 125

**Sodium Silicate—**
Rotterdam, 2 cks.

**Stearine—**
Antwerp, 6 bgs.

**Sulphur—**
Catania, 290 bgs. 50 t. 500 brls.
Huelva, 1,090 t. Matheson & Co.

**Talc—**
Havre, 4 pkgs. Cunard S. S. Co.

**Tallow—**
B. Ayres, 200½ pps.
Boston, 41 hds.
Philadelphia, 38 tcs.
Rouen, 33 cks. Co-op. W'sale Society, Ld.
Constantinople, 2 brls. P. Lumbros
Baltimore, 200 tcs.
New York, 50 hds.

**Tartar—**
Naples, 1 ck.
Bordeaux, 10 cks.

**Turpentine—**
Savannah, 3,540 brls.

**Ultramarine—**
Hamburg, 2 cks.
Bremerhaven, 20
Rotterdam, 4
Hamburg, 30 cs. D. Currie & Co.

**Verdigris—**
Bordeaux, 1 ck.

**White Lead—**
Ghent, 14 cks.
Rotterdam, 56

**Zinc Ashes—**
New York, 35 pkgs. R. Crookes & Co.

**Zinc Oxide—**
St. Nazaire, 22 brls.
Antwerp, 170
Rotterdam, 50 cks.

**Zinc White—**
Havre, 20 pkgs. Cunard S. S. Co.

## HULL.

*Week ending July 16th.*

**Acid—**
Hamburg, 1 bl.
Rotterdam, 10 botls. Lofthouse & Saltner

**Alum—**
Rotterdam, 61 cks. W. & C. L. Ringrose

**Alumina Sulphate—**
Rotterdam, 1 ck. Blundell, Spence & Co.

**Barytes—**
Bremen, 61 cks.
Antwerp, 100

**Caoutchouc—**
Hamburg, 1 cs. C.M. Lofthouse & Co.
" 1 "

**Chemicals** (*otherwise undescribed*)
Stettin, 62 cks. Wilson, Sons, & Co., Ld.
Copenhagen, 1 "
Bremen, 10 1 kg. Veltmann & Co.
Antwerp, 15 Wilson, Sons, & Co., Ld.

**Colours—**
Antwerp, 10 cs. Wilson, Sons, & Co., Ld.
Hamburg, 4 cks. Sissons Brs & Co.
Stettin, 1 Wilson, Sons, & Co., Ld.
Rotterdam, 2 1 cs. 6 pks. Hutchinson & Son
Antwerp, 26 Bailey & Leetham
" 1 Hanger, Watson & Harris
" 2 bgs. G. Lawson & Sons
" 50 6 cks.
Bremen, 5 cs. Veltmann & Co.
" 8 G. Malcolm & Son
" 4 cks. Storry, Smithson & Co.
" 12
Rotterdam, 46 5 cs. 9 pks. W. & C. L. Ringrose
" 43 34 pks. G. Lawson & Sons
Flushing, 43 164 6 cs. Zeeland S. S. Co.
Rotterdam, 1 cs. Blundell, Spence & Co.

**Dyestuffs—**
**Alizarine**
Rotterdam, 26 cks. W. & C. L. Ringrose
" 8 brls. G. Lawson & Sons
**Aniline**
Flushing, 3 cks. Zeeland S. S. Co.
**Madder**
Rotterdam, 4 cks. W. & C. L. Ringrose
**Myrabolams**
Bombay, 668 bgs. Sassoon & Co.

**Farina—**
Stettin, 200 bgs. Wilson, Sons, & Co., Ld.
Ghent, 120 cs. "
Harlingen, 1,010 bgs. W. & C. L. Ringrose

**Glucose—**
Stettin, 14 cks.
Rotterdam, 24 pks. W. & C.L. Ringrose
Hamburg, 5 cks. Wilson, Sons, & Co., Ld.
Dunkirk, 80 pks. "

**Ochre—**
Rouen, 4 cks. Rawson & Robinson
Marseilles, 22 Wilson, Sons, & Co., Ld.

**Paint—**
Boston, 29 cs. Wilson, Sons, & Co., Ld.
Odessa, 80 drs.

**Pitch—**
Hamburg, 50 cks. G. Lawson & Sons
" 32 W. Jackson & Son

**Rosin—**
Bordeaux, 6 cks. Rawson & Robinson
" 3

**Soap—**
Naples, 38 cs.

**Stearine**—
Antwerp, 19 bgs. Wilson, Sons, & Co., Ld.

**Tallow Oil**—
Boston, 252 tcs. Wilson, Sons, & Co., Ld.

**Tar**—
Uleaborg, 1,100 brls. 300½ brls. J. Good & Sons

**Turpentine**—
Bordeaux, 50 brls. Rawson & Robinson
" 40

**Ultramarine**—
Rotterdam, 4 cks. G. R. Sanderson & Co.

**Vermilion**—
Bremen, 2 cs. J. Pyefinch & Co.

**White Lead**—
Rotterdam, 86 cks.
Ghent, 20 brls.

**Zinc Ashes**—
Amsterdam, 5 cks.

## GLASGOW.

*Week ending July 21st.*

**Alum**—
Hamburg, 110 cks.

**Barytes Sulphate**—
Ghent, 100 bgs.

**Colours**—
Rotterdam, 5 cks. G. & J. Boyd

**Cream of Tartar**—
Marseilles, 22 b.ls.

**Dyestuffs**—
**Alizarine**
Rotterdam, 51 cks. J. Rankine & Son
" 28 brls. 1 bx.
**Aniline Colours**
Rotterdam, 2 css. J. Rankine & Son
**Extracts**
Fiume, 525 brls.
Ghent, 2 cks.
**Indigo**
Rotterdam, 2 css. J. Rankine & Son

**Farina**—
Ghent, 20 bgs.

**French Chalk**—
Fiume, 100 bgs. M'Intosh & Sons

**Glucose**—
New York, 50 brls.

**Guano**—
Hammerfest, 619 bgs.

**Ochre**—
Bordeaux, 30 cks.
Marseilles, 81 brls.
Rouen, 49

**Paint**—
Malta, 1 cs. Matthews, Maclay & Manson

**Potash**—
Montreal, 21 brls.

**Pyrites**—
Huelva, 1,705 t. Tharsis Sulphur & Copper Co., Ltd.

**Rosin**—
New York, 600 brls.

**Saltpetre**—
Hamburg, 5 cks.

**Soap**—
Bari, 216 css. J. Dawson & Co.
" 360 Bryce & Rumpf
" 165

**Tartar**—
Cadiz, 9 cks.

**Ultramarine**—
Rotterdam, 3 cs. J. Rankine & Son

**Waste Salt**—
Hamburg, 280 t.

**White Lead**—
Ghent, 18 cks.
Rotterdam, 27

**Zinc Oxide**—
Rotterdam, 10 cks.

## TYNE.

*Week ending July 16th.*

**Acetic Acid**—
Rotterdam, 85 btls. T. S. S. Co.

**Alum Earth**—
Hamburg, 35 cks. T. S. S. Co.

**Antimony**—
Hamburg, 1 bg. T. S. S. Co.

**Colours**—
New York, 4 cks. Furness, Withy & Co.

**Cryolite**—
Copenhagen, 3 cks.

**Glucose**—
New York, 66 brls. Furness, Withy & Co.

**Plumbago**—
Antwerp, 1 bg. T. S. S. Co.

**Salt**—
Hamburg, 250 t. Clephans & Wiencke
" 134 bgs. T. S. S. Co.

**Sulphur**—
Pomaron, 977 t. Mason & Barry

**Tallow**—
New York, 90 hds. Furness, Withy & Co.

**Zinc Oxide**—
Rotterdam, 4 cks. T. S. S. Co.
Antwerp, qnty "

## GOOLE.

*Week ending June 30th.*

**Antimony**—
Boulogne, 2 cks.

**Caoutchouc**—
Boulogne, 2 cks.

**Carbolic Acid**—
Rotterdam, 76 cks.

**Caustic Potash**—
Dunkirk, 7 dms.

**Dyestuffs** (*otherwise undescribed*)
Boulogne, 51 cks. 3 cs.

**Extracts**—
Ghent, 50 cks.

**Phosphate**—
Ghent, 200 t. 816 l gs.

**Potash**—
Calais, 4 cks. 38 dms.

**Saltpetre**—
Hamburg, 22 cks.

**Sodium Carbonate**—
Hamburg, 4 cks.

**Waste Salt**—
Hamburg, 454 t. 558 bgs.

## GRIMSBY.

*Week ending July 4th.*

**Caoutchouc**—
Antwerp, 1 bale

**Chemicals** (*otherwise undescribed*)
Hamburg, 8 pkgs.
Antwerp, 3 cks.

**Dyestuffs** (*otherwise undescribed*)
Dieppe, 34 cks.

**Soda**—
Antwerp, 29 bgs.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending July 20th.*

**Acids**—
Port Elizabeth, 9 cs. £11
Natal, 7 8
Calcutta, 2 kgs. 18
Alexandria, 4 18

**Ammonium Carbonate**—
Amsterdam, 19 c. £28
Adelaide, 5 11
Sydney, 8 cks. 24

**Ammonium Chloride**—
Galatz, 9 c. £14
Varna, 9 15
Libau, 2 cks. 19
Sydney, 1 t. 2 32
Constantinople, 3 1 98

**Ammonium Nitrate**—
Algoa Bay, 3 t. 10 c. £211

**Ammonium Sulphate**—
Demerara, 6 t. 10 c. £63
Philadelphia, 45 3 480
Havre, 85 13 940
Natal, 20 10 205
Hamburg, 86 1 872
Rotterdam, 38 428
Demerara, 119 19 1,320

**Arsenic**—
Melbourne, 5 c. £4
Amsterdam, 6 cks. 15

**Barium Peroxide**—
Philadelphia, 9 c. £29

**Bisulphite of Lime**—
Ghent, 2 t. 14 c. £11

**Bleaching Powder**—
Melbourne, 1 t. 12 c. £14

**Boracic Acid**—
Melbourne, 10 c. £21

**Borax**—
Genoa, 19 c. £75
Amsterdam, 9 27
Hamburg, 8 cks. 66
Melbourne, 17 28
Adelaide, 10 16
Harlingen, 5 cs. 9

**Boric Acid**—
B. Ayres, 3 cks. £21

**Carbolic Acid**—
Hobart, 3 cs. £13
Melbourne, 19 c. 11
Sydney, 19 11
Hamburg, 120 cks. 772
Odessa, 3 t. 16 c. 45

**Caustic Soda**—
Melbourne, 2 t. 5 c. £48
Natal, 1 4 45
Philadelphia, 37 10 417
E. London, 1 4 35

**Chemicals** (*otherwise undescribed*)
Berbice, 3 pkgs. £22
Adelaide, 15 cs. 30 crts. 49
Port Darwin, 20 17
Lyttelton, 20 kgs. 100
Melbourne, 5 16 pkgs. 48
Sydney, 16 dms. 40
Brisbane, 12 3 pkgs. 31
Auckland, 2 cs. 13
Christchurch 10 16

**Citric Acid**—
Amsterdam, 3 c. £23
Brussels, 5 40
B. Ayres, 10 kgs. 78
E. London, 2 18
Hamburg, 2 t. 12 2 413

**Coal Products**—
**Aniline Oil**
Rotterdam, 12 drs. £360
**Anthracene**
Dusseldorf, 259 cks. £1,426
Rotterdam, 626 2,300
**Coal Tar Dyes**
Boston, 10 pkgs. £132
N. York, 21 cs. 160
**Creosote**
Danzig, 200 brls. £86
Boulogne, 1 cs. 2 dms. 30
**Naphtha**
Adelaide, 20 crates. £12
Calais, 27 brls. 82
**Naphthalene**
Treport, 48 cks. £57
N. York, 70 bgs. 43
Hamburg, 6 47
**Paraffin Scale**
Copenhagen, 20 brls. £110
Launceston, 20 cks. 62
**Pitch**
New York, 1,000 cks. £513
Marseilles, 85 pkgs. 24
Antwerp, 433 t. 641
Adelaide, 157 cks. 219
**Tar**
Natal, 240 drs. £17
Danzig, 250 brls. £100
Hamburg, 50 24

**Copperas**—
Varna, 16 t. 5 c. £33
Libau, 15 12

**Copper Sulphate**—
Lisbon, 4 t. 18 c. £71
Amsterdam, 5 75
Bordeaux, 12 10 200
Sydney, 10 9

**Cream of Tartar**—
Hobart, 7 c. £34
Calcutta, 4 18
Melbourne, 2 t. 179
Adelaide, 10 49
Sydney, 4 14 421
Natal, 3 14
Brisbane, 2 17 265
Fremantle, 3 16

**Disinfectants**—
Hobart, 44 pkgs. £38
Trinidad, 30 drs. 63
Sydney, 10 cks. 41
Kurrachee, 1 t. 1 c. 11
Hamburg, 25 cs. 46 cks. 50 bgs. 400
Bombay, 7 9
Calcutta, 42 pkgs. 26

**Flowers of Sulphur**—
Hobart, 1 t. £8

**Glycerine**—
Lisbon, 4 c. £19

**Guano**—
Barbadoes, 100 t. £1,000

**Hydrofluoric Acid**—
Algoa Bay, 12 c. £40

**Manure**—
Berbice, 26 t. £264
Demerara, 30 284
Madeira, 24 4 c. 197
Mauritius, 98 17 420
Gothenburg, 68 4 262
Teneriffe, 3 42
Wellington, 250 1,000
Demerara, 12 124
Trepoit, 100 5 584

**Nitric Acid**—
Jersey, 48 carboys £96

**Oxalic Acid**—
Paris, 5 t. 3 c. £135
Antwerp, 1 6 35

**Phosphorus**—
Las Palmas, 1 cs. £10

**Potash**—
B. Ayres, 9 c. £10
Sydney, 1 t. 24

**Potash Crystals**—
Montreal, 7 c. £20
Brussels, 18 35

**Potassium Bicarbonate**—
Philadelphia, 2 t. 9 c. £63
Rockhampton, 1 10 50

**Potassium Cyanide**—
Calcutta, 14 c. £34
Shanghai, 2 cs. 11
Madras, 3 9
B. Ayres, 2 14

**Saltpetre**—
Hobart, 15 c. £17
Galatz, 4 t. 2 84
Launceston, 10 11
Amsterdam, 2 46
Bremen, 2 10 56
Rio de Janeiro, 2 10 56
Adelaide, 1 10 32
Melbourne, 1 22
Lisbon, 3 13 74
Wellington, 1 10 33
B. Ayres, 4 3 9

**Sheep Dip—**
E. London, 500 drs. £100
Algoa Bay, 100 3 cs. 53
Odessa, 100 300
Wellington, 6 cks. 38
Calcutta, 95 35
Montreal, 25 1 42

**Soda—**
Guildford, 1 t. £4
B. Ayres, 7 c. 2

**Soda Ash—**
Auckland, 10 t. 19 c. £68
Fremantle, 5 19 28

**Soda Crystals—**
Hobart, 3 t. 6 c. £12
Fremantle, 7 23

**Soda Salts—**
New York, 2 t. 4 c. £25

**Sodium Bicarbonate—**
Hobart, 1 t. 16 c. £21
Demerara, 10 14
Auckland, 2 37
Sydney, 10 75
Aden, 2 16
E. London, 12 4
Lyttelton, 4 12 43

**Sodium Carbonate—**
Hobart, 1 t. £8

**Sodium Hyposulphite—**
Calcutta, 8 c. £10

**Sodium Sulphate—**
Ghent, 60 t. £90
Norrkoping, 100 150

**Sulphur—**
Philadelphia, 2 t. 19 c. £110

**Sulphuric Acid—**
Algoa Bay, 14 t. 15 c. 25 cs. £81
Capetown, 15 7
Amsterdam, 1 5 15

**Superphosphate—**
Timaru, 375 t. £1,227

**Tartaric Acid—**
Calcutta, 2 c. £13
Kurrachee, 4 cs. 23
Melbourne, 5 26
Adelaide, 5 36
E. London, 2 14
Sydney, 4 t. 17 574
Baghdad, 1 6
B. Ayres, 100 cks. 10 kgs. 1,093
Brisbane, 1 10 168

**Toluidine—**
New York, 10 drs. £340

## LIVERPOOL.

*Week ending July 20th.*

**Alum—**
Corunna, 1 t. £5
Alexandria, 2 10
Syra, 2 18 c. 15
Piræus, 2 3 11
Beyrout, 3 8 17
Montreal, 10 10 59
Malta, 1 2 6
Valparaiso, 2 4 12
Galatz, 10 40
Lisbon, 3 10 21

**Ammonium Carbonate—**
Corunna, 5 c. £8
Rangoon, 9 16
M. Video, 18 15
Genoa, 6 10
Hamburg, 10 17
Rotterdam, 1 t. 13 3 q. 48

**Ammonium Chloride—**
Bilbao, 2 t. £66
Calcutta, 2 5 c. 75
Philadelphia, 13 5 326
Bombay, 7 16 264
Callao, 1 3 q. 6
Galatz, 10 17
Genoa, 10 14
Alexandretta, 1 33
Piræus, 3 1 6

**Ammonium Sulphate—**
Leghorn, 75 t. £900
Rouen, 9 15 97
Teneriffe, 10 3 q. 6

**Barytes Chlorate—**
Rotterdam, 1 t. £79

**Bleaching Powder—**
Odessa, 118 cks.
Terneuzen, 29
Alicante, 30
Baltimore, 188
Boston, 410
New York, 166
Philadelphia, 58

**Boracic Acid—**
Mayaquez, 1 c. £2

**Borax—**
Constantinople, 9 c. £13
Cienfuegos, 5 8
Antwerp, 4 t. 120
Barcelona, 3 cks. 33
Adelaide, 5 brls. 5 kgs. 32
Yokohama, 7 1 q. 13
Talcahuano, 5 cs. 7
Sydney, 1 t. 38
Rotterdam, 3 9 101
Accra, 50 brls. 5 kgs.

**Calcined Magnesia—**
Rosario, 2 hds. 1 cs.

**Carbolic Acid—**
Rotterdam, 7 c. £20
Barcelona, 6 2 q. 15
Yokohama, 10 22
Rotterdam, 2 6
Philadelphia, 2 t. 10 115

**Caustic Potash—**
Havre, 2 t. 4 c. £74

**Caustic Soda—**
Algoa Bay, 10 dms.
Bilbao, 18
Chicago, 60 4 brls. 81 bxs.
Cienfuegos, 20 20 cks.
Colon, 12 cs.
Galatz, 10 kgs.
Genoa, 302
Lisbon, 56
Malaga, 6
Montreal, 250
Naples, 116
New Orleans, 51
New York, 455 100 100 cks.
Penang, 40
Plasencia de Caseres, 205 dms.
Rangoon, 100 dms.
Rio de Janeiro, 5
Rosario, 20
St. Petersburg, 150
Salonica, 7
Seville, 130
Tampico, 20 kgs.
Vera Cruz, 100
Baltimore, 135 brls.
Barcelona, 100
Boston, 200
B. Ayres, 40 2
Calcutta, 107
Catania, 121
Ceara, 50
Gifle, 10 26
Ghent, 35
Hamburg, 56
Hiogo, 100
Malta, 182
Melbourne, 11
Odessa, 475
Oporto, 28
Samarang, 49
Sydney, 30

**Chemicals** *(otherwise undescribed)*
Pelotas, 1 t. 3 c. £33
San Francisco, 9 cs. 42
Genoa, 11 21
Havana, 2 1 16
Odessa, 1 30

**Chloroform—**
Halifax, 1 cs.

**Colours—**
Montreal, 6 kgs.
Boston, 12 6 cks.
New York, 8 2 cs.

**Copperas—**
Alexandria, 10 t. 2 c. £20
Constantinople, 2 16 6
Bahia, 3 7 7
Calcutta, 14 9 25

**Copper Sulphate—**
Calcutta, 5 t. £79
Amsterdam, 5 1 c. 1 q. 70
New York, 20 308
Catania, 3 2 2 46
Constantinople, 15 12
Naples, 17 6 2 235
Trieste, 10 160
Teneriffe, 9 cwt. 7
Shanghai, 30 1,402
Genoa, 5 2 3 71
Marseilles, 5 2 71
Lisbon, 5 2 66
Oporto, 1 16
Odessa, 16 4 5 243
Antwerp, 14 4 2 213
Bordeaux, 39 17 3 620
Dunkirk, 4 19 80
Kingston, Jam., 1 20
Rouen, 16 240
B. Ayres, 2 31
Barcelona, 9 2 3 135
Ghent, 1 10 2 246

**Cream of Tartar—**
Montreal, 2 t. 2 c. £11

**Disinfectants—**
Alexandria, 8 cks. 2 cs. £32

**Dried Blood—**
Leghorn, 40 t. 9 c. 1 q. £237

**French Chalk—**
Philadelphia, 10 bgs.

**Glycerine—**
New York, 25 t. 1 c. 3 q. £502

**Lead Acetate—**
Corunna, 5 c. 3 q. £8

**Manganese—**
Antwerp, 9 t. 3 q. £98
Gijon, 155 cks.

**Magnesia—**
Detroit, 5 cs.
Ferrol, 1 1 ck.
Lisbon, 1

**Mangnesium Carbonate—**
San Juan, 5 cs.

**Magnesium Chloride—**
Bombay, 5 t. 2 c. £14

**Magnesium Citrate—**
Rosario, 1 cs.

**Magnesium Sulphate**
Mauritius, 300 kgs.
Rio de Janeiro, 290 bgs.

**Manure—**
Santa Cruz, 36 t. 9 c. £360

**Oxalic Acid—**
Barcelona, 5 t. 6 c. £137

**Paint—**
Bathurst, 1 cs.
Benguella, 80 kgs.
Cape Kayti, 2 cks.
Cephalonia, 180
Hamburg, 225
Havana, 4
Lisbon, 30 2 6 brls.
Manaos, 31 dms. 10 18 10
Para, 10 5
Port-au-prince, 5
Rio de Janeiro, 12
Rosario, 20
St. John's, Nfld, 10
San Juan, 10
Santos, 1
Seville, 6
Trieste, 60 dms.
Valparaiso, 20 90
Amsterdam, 6 3
Barcelona, 7
Cabenda, 10
Callao, 22 3
Cienfuegos, 2
Gr. Canary, 30
Manilla, 295 18
New York, 105 1 150
Philadelphia, 100
Rotterdam, 22
Trieste, 1

**Painters' Colours—**
Accra, 1 cs.
Alexandria, 480 cks.
Arica, 10
Bombay, 2 64 kgs.
Hamburg, 16 4 2 dms. 30 bgs. 1 hmpr.
New York, 1 cs.
Oporto, 10
Panama, 3
Philadelphia, 207
Point Levi, 2 brls.
St. John's, Nfld., 115 1 cs.
Sierra Leone, 2 12
Antwerp, 6 4
Bahia, 11
Barbadoes, 2 1
Galatz, 100
Mayaquez, 6 tcs. 2 2 20 3
Melbourne, 60
M. Video, 35
Montreal, 7
Para, 18 69 10 1
Rio Grande, 2
Smyrna, 200 3
Valparaiso, 10

**Phosphorus—**
Shanghai, 20 cs. £162
B. Ayres, 2 8

**Pitch—**
Singapore, 3 t. 13 c.

**Potassium Bichromate—**
Smyrna, 1 t. £44

**Potassium Carbonate—**
Philadelphia, 1 t. 12 c. 3 q. £36

**Potassium Chlorate—**
Genoa, 10 c. £23
Catania, 10 23
Stockholm, 5 t.
Antwerp, 1
B. Ayres, 8 34
Leghorn, 8
Trieste, 10
Shanghai, 1 10
Rotterdam, 1 10
Oporto, 10
Gothenburg, 4
Genoa, 2
Naples, 10
Malmo, 2
Messina, 6
M. Video, 10
Hong Kong, 1 18
Venice, 4
Yokohama, 2 10
Copenhagen, 5 10
Hamburg, 10

**Potassium Nitrate—**
Tampico, 1 t. 15 c. 2 q.

**Salt—**
Antofagasta, 8 cs.
B. Ayres, 100 t.
Calcutta, 7,462
Ghent, 180 1,989 cks.
Iceland, 290
Malta, 1
Manaos, 25
Manilla, 8 c.
Mayaquez, 20 cs.
Melbourne, 95
Monrovia, 250
Montreal, 30 7,818
New Orleans, 4,124
New York, 2,800 1,5
Rio de Janeiro, 8 c.
Rotterdam, 181
Shanghai, 8
Trangesund, 510
Bakana, 48
Baltimore, 300
Black Point, 5
Bonny, 50
Boston, 74
Kingston, 50
Landana, 5
Malaga, 12 ck
Richibucto, 250

**Salt Cake—**
Baltimore, 25 t. 5 c.

**Saltpetre—**
Bahia, 12 c. 34
Piræus, 7 t. 10
E. London, 15
Rio de Janeiro, 4 3

**Sheep Dip—**
B. Ayres, 40 t. 8 c.
Cape Town, 3 15
Pt. Natal, 2 5

**Soap—**
Alexandria,
Antigua, 50 bxs.
Antwerp,
Barbadoes, 800
B. Ayres, 1
C. C. Castle,
Manilla,
St. John's, N.F., 150
Valparaiso, 70
Accra, 219
Aden, 475
Algoa Bay, 3
Annoto Bay, 30
Amsterdam, 485
Bakana,
Bata, 10
Bathurst, 50
Bereby, 30
Bombay, 1,004 8 cks.
Calcutta,
Callao,
Cameroon, 190
Cape Town, 550
Christiania, 248 25 bdls.
Colon, 40
Curacao, 350
Genoa, 25
Gibraltar, 50
Gr. Canary, 15 frks.
Havre,
Kingston, 50 sks.
Kurrachee, 900
Lagos,
Lanzarote, 70
Las Palmas, 175
Leghorn,
Mandyo, 80
Monrovia, 29
Morant Bay, 25
N'kami, 60
Natal, 1,701
New Orleans, 200
New York, 500
Old Calabar, 300
Opobo, 2,703

Port Maria, 400
Port Said, 36
Rio de Janeiro, 1
Samarang, 2 4
Santander, 11
Savanilla, 4
Shanghai, 250
Sherbro, 10
Sierra Leone, 200
Singapore, 102 10
Sourabaya, 2 4
Trinidad, 50

**Soda—**
Batavia, 95 kgs.
Boston, 268 bgs. 431 cks.
B. Ayres, 300 151
Baltimore, 130
Bombay, 100 cs.

**Soda Alkali—**
Ceara, 15 brls.
Lisbon, 38
Melbourne, 40
Odessa, 75
Sydney, 80
Volo, 17

**Soda Ash—**
Baltimore, 200 bgs.
Beyrout, 10 brls.
Bombay, 7 cks.
Calcutta, 30
Corfu, 45
Montreal, 776 35
New York, 480 158
Paysandu, 50
Rio de Janeiro, 10
Rosario, 100
Boston, 354
Everet, 65
Leghorn, 20
Malta, 5 cs.
Philadelphia, 132
Smyrna, 150

**Soda Crystals—**
Karrachee, 50 kgs.
New York, 50 cks.
Valencia, 13 brls. 13
Batavia, 50
Smyrna, 4
Sydney, 166

**Sodium Arseniate—**
Lisbon, 4 cs.

**Sodium Biborate—**
New York, 5 c. £14
Rotterdam, 1 t. 3 q. 31
Havre, 5 150
Hamburg, 10 19 329
Yokohama, 2 19 2 90
B. Ayres, 7 9 274
Genoa, 50 kgs.

**Sodium Bicarbonate—**
Genoa, 250 kgs. 36 cks.
Gothenburg, 2
Havre, 135
Karrachee, 745
Marseilles, 254
Montreal, 150
San Juan, 10
Smyrna, 261
Syra, 20
Volo, 10 cs.
Hamburg, 40
Leghorn, 25
Trieste, 40
Venice, 200 bgs.

**Sodium Carbonate—**
Boston, 84 brls.
New York, 168

**Sodium Chlorate—**
Ghent, 1 t. £61
New York, 3 10 c. 217
Antwerp, 10 25
Hamburg, 1 10 92
St. Petersburg, 1 54

**Sodium Hyposulphite—**
Montreal, 12 cks.

**Sodium Nitrate—**
Almeria, 3 t. 15 c. 3 q. £33
Las Palmas, 2 17
Malaga, 25 4 220

**Sodium Silicate—**
Ibrail, 20 cks.
Malta, 7
Naples, 14 brls.
Valencia, 15

**Strontia—**
Hamburg, t. 5 c. £19

**Sulphur—**
Rouen, 10 t. £53
Halifax, 7 10 c. 2 q. 52
Philadelphia, 334 bgs. 260
Calcutta, 7 10 43

**Sulphuric Acid—**
M. Video, 1 t. 10 c. £16

**Tallow—**
Alexandria, 20 brls.
Seville, 50
Bathurst, 1 ck.
Boca, 1
Oporto, 27

**Tar—**
St. John's N'fld., 75 brls. 16 t.

**Tartaric Acid—**
Samarang, 1 c. £7
Montreal, 1 t. 3 1 ck. 151

**Turpentine—**
Iloilo, 8 dms.

**Varnish—**
Corfu, 4 cs.
Bilba, 1 c.

**Verdigris—**
Yokohama, 10 c. 3 q. £31

**White Lead—**
Kurrachee, 20 kgs.

**Zinc Chloride—**
Bombay, 8 t. 13 c. 3 q. £194

## HULL.

*Week ending July 16th.*

**Benzol—**
Ghent, 15 cks.

**Caustic Soda—**
Alexandria, 50 dms.
Antwerp, 5 tns.
Danzig, 150
Riga, 237

**Chemicals** (*otherwise undescribed*)
Alexandria, 15 cks.
Antwerp, 1 cs.
Amsterdam, 20
Copenhagen, 140 7 cs.
Christiania, 6 cs. 28 26 pks. 168 slbs.
Danzig, 30 pkgs.
Gothenburg, 50 70 cs.
Hamburg, 5
Harlingen, 10
Jersey, 250 pkgs.
Konigsberg, 6
Libau, 10
Rotterdam, 60 cs.
Riga, 46 150 kgs.
Rouen, 16
Stettin, 20
St. Petersburg, 27

**Cottonseed Oil—**
Antwerp, 205 c.
Amsterdam, 300
Bremen, 100
Christiania, 20
Flushing, 219
Gothenburg, 120
Hamburg, 500
Rotterdam, 742

**Creosote—**
Gothenburg, 201 cks.

**Dyestuffs** (*otherwise undescribed*)
Antwerp, 6 cks.
Christiania, 62 bgs.
Danzig, 5 cks.
Stettin, 2
St. Petersburg, 3

**Linseed Oil—**
Copenhagen, 17 c.
Christiania, 238
Drontheim, 126
Hamburg, 115

**Naphtha—**
Copenhagen, 14 cks

**Ochre—**
Gothenburg, 10 cks

**Painters' Colours—**
Antwerp, 73 cks. 1 dm. 3 cs.
Amsterdam, 10 kgs. 4
Copenhagen, 8 2 pks. 1
Christiania, 2 134 60 dms.
Dunkirk, 2
Danzig, 4
Drontheim, 19
Flushing, 1
Ghent, 11
Hamburg, 38
Konigsberg, 1
New York, 141 1 kg. 400 cs.
Rotterdam, 11 4 kgs.
Riga, 1 dm.
Stettin, 47 10 pkgs.
St. Petersburg, 50

**Pitch—**
Antwerp, 250 t.
Flushing, 55

**Soap—**
Drontheim, 20 cs.

**Tallow—**
Flushing, 6 cks.
Gothenburg, 11

**Tar—**
Danzig, 2 cks.
Hamburg, 2

**Varnish—**
Antwerp, 13 cks.
Amsterdam, 3
Hamburg, 1
Rotterdam, 6

## GLASGOW.

*Week ending July 21st.*

**Ammonium Sulphate—**
Bordeaux, 100 t. 15 c. £1,035
Charente, 100 13¾ 1,010
New York, 5 51

**Benzol—**
Rotterdam, 10 dms. £96

**Copperas—**
Rangoon, 2 t. 12¼ c. 15 lbs. £101

**Creosote—**
Bordeaux, 71 t. 4 c. £130

**Iodine—**
Rotterdam, 1 ck. £265

**Linseed Oil—**
Sydney, 8 t. 1 c. £153

**Paint—**
Rangoon, 8 t. 10 c. £115
Calcutta, 4 8½ 85

**Painters' Colours—**
Rangoon, £71

**Potassium Bichromate—**
Rotterdam, 12 cks. £200

**Silver Nitrate—**
Rangoon, 1½ c. £30

**Sodium Bichromate—**
Amsterdam, 14 cks. £180
Rotterdam, 24 327

**Sodium Chlorate—**
Rotterdam, 3 kgs. £10

**Sodium Silicate—**
Sydney, 5 t. 5 c. £31

**Sulphuric Acid—**
Rangoon, 55 t. 11 c. £564

**Tallow—**
Rotterdam, 2 t. 10 c. £90

**Tar—**
New York, 58 t. 6 c. £140

**White Lead—**
Sydney, 15 t. 2 c. £374

## TYNE.

*Week ending July 16th.*

**Alkali—**
Hamburg, 5 t. 1 c.
Rotterdam, 4 10
Danzig, 10 7
Riga, 10 6

**Ammonium Carbonate—**
Danzig, 1 t. 7 c.

**Ammonium Sulphate—**
Hamburg, 50 t.

**Antimony—**
Antwerp, 1 t.
Copenhagen, 11 c.

**Barium Binoxide—**
Dunkirk, 10 t. 17 c.

**Baryta Hydrate—**
Danzig, 5 t. 8 c.

**Barytes Carbonate—**
Hamburg, 5 t.
Rotterdam, 50

**Bleaching Powder—**
Hamburg, 41 t. 2 c.
Antwerp, 36 15
Genoa, 2 17
Christiania, 39 6
Lisbon, 5 4
Rotterdam, 13 10
Danzig, 70 16
Aarhuus, 3 6
Drontheim, 10 2
Copenhagen, 79 18
St. Petersburg, 23 19
Bergen, 15
Riga, 38 15
Gothenburg, 5 1
Rouen, 5 3

**Caustic Soda—**
Constantinople, 2 t. 19 c.
Genoa, 14 10
Aarhuus, 1 4
Copenhagen, 2 11
Riga, 35 12

**Colours—**
Copenhagen, 2 t.

**Litharge—**
Hamburg, 15 c.
Lisbon, 2 t. 14
Rotterdam, 11
Copenhagen, 11

**Magnesia—**
Hamburg, 19 c.
Genoa, 1 t. 2

**Mica—**
Antwerp, ¼ c.

**Paint—**
Constantinople, 2 t. 10 c.
Hamburg, 5
Ergastiria, 11

**Soda—**
Aarhuus, 5 t. 7 c.
Bergen, 2 3
Stavanger, 3 6

**Soda Ash—**
Hamburg, 2 t. 16 c.
Lisbon, 5
Rotterdam, 1 7
Danzig, 9 18
Copenhagen, 13 12
Riga, 19 17
Gothenburg, 10 3

**Sodium Hyposulphite—**
Constantinople, 1 t.
Genoa, 1 12 c.

**Sodium Sulphate—**
Constantinople, 99 t. 18 c.
Copenhagen, 2 14

**Sulphur—**
Hamburg, 20 t.
Christiania, 125
Rotterdam, 200
Riga, 55
Gothenburg, 10

**Superphosphate—**
Riga, 209 t. 2 c.

**Tallow—**
Hamburg, 1 t. 2 c.

**Tar—**
Danzig, 9 c.

**Varnish—**
Kiel, 10 c.

**White Lead—**
Genoa, ½ c.
Oporto, 6 t. 4
Copenhagen, 1 9

## GOOLE.

*Week ending June 30th.*

**Chemicals** (*otherwise undescribed*)
Antwerp, 2 cks.
Ghent, 1 pkg.
Hamburg, 7 24 dms.
Rotterdam, 24

**Coal Products** (*otherwise undesc'd.*)
Ghent, 4 cks. 4 cs.
Hamburg, 5
Rotterdam, 10

**Dyestuffs** (*otherwise undescribed.*)
Antwerp, 2 cks.
Boulogne, 3 2 cs.
Ghent, 2 dms. 1 tin

**Manure—**
Hamburg, 165 bgs.

**Pitch—**
Antwerp, 360 t.

## GRIMSBY.

*Week ending July 4th.*

**Chemicals** (*otherwise undescribed*)
Antwerp, 17 cs.
Dieppe, 1 ck. 177 pkgs.
Hamburg, 40 32

**Coal Products** (*otherwise undesc'd.*)
Dieppe, 106 cks.

**Dyestuffs** (*otherwise undescribed.*)
Dieppe, 5 cks.

**Pitch—**
Dieppe, 60 bgs.

# PRICES CURRENT.

WEDNESDAY, July 27th, 1892.

Prepared by Higginbottom and Co., 116, Portland Street, Manchester.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids :—** | | | | |
| Acetic, 25 °/₀ and 40 °/₀ | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | 50/- | | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 °/₀) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ( ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 11 | 15 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| ,, ,, (medium qualities) | ,, | 4 | 15 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, ·880=28° | per lb. | 0 | 0 | 3 |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 9 | 17 | 6 |
| ,, (grey) Hull | ,, | 9 | 17 | 6 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett | ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 2 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes :—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8¾ |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 10½ |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 8 |
| ,, 50/90 ,, | ,, | 0 | 1 | 3½ |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 6 |
| ,, (crude 60°) | per gallon | 0 | 1 | 3 |
| Creosote (ordinary) | ,, | 0 | 0 | 1 |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 0 | 11 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 44 | 7 | 6 |
| ,, Sulphate | ,, | 15 | 5 | 0 |
| ,, Oxide (copper scales) | ,, | 44 | 0 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 45 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 17 | 6 |
| ,, Litharge Flake (ex ship) | ,, | 14 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, ( brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| ,, Nitrate | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 5 | 17 | 6 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 4 | 0½ |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 3 | 9 |
| **Oils :—** | | | | |
| Cotton-seed | per ton | 19 | 10 | 0 |
| Linseed | ,, | 20 | 5 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 6½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 6½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 6½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 10 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 10 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 10 | 0 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 7 | 17 | 6 |
| Silver (metal) | per oz. | 0 | 3 | 3½ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 7 | 6 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 6 | 5 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 17 | 10 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8 |
| ,, Borate (Borax) | nett, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3½ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | nett pr. ton (10 ton lots) | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 15 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 4½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7½ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 16 | 6 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7½ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7½ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 5 | 0 |
| ,, Brimstone : Best Quality (nominal) | ,, | 5 | 0 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 27 | 0 | 0 |
| Tin (English Ingots) | ,, | 97 | 10 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 21 | 15 | 0 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# HEMICAL TRADE JOURNAL

AND

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, reports, and correspondence on all matters of interest to the and allied industries, home and foreign, are solicited, dents should condense their matter as much as possible, ne side only of the paper, and in all cases give their names esses, not necessarily for publication. Sketches should be parate sheets.

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sements intended for insertion in the current week's issue ch the office by **Wednesday morning** at the latest.

## THE ADULTERATION OF COMMERCIAL FERTILIZERS.

IT is by no means the first time that we have touched upon this subject, but we shall not make any apology for once more bringing it up, since the necessity for taking some measures to arouse the interest of those who should for the sake of their own welfare give attention to the matter, is brought home to us with ever-increasing force, as we see every year fresh evidences of the good being done in other countries, while we perpetuate the state of inertia which has stigmatized our attempts to advance the utility of chemistry in connection with agriculture.

It has been long known to us that in Germany, Canada and the United States of America, extensive provision has been made for placing the testing of commercial fertilizers on a more satisfactory basis, so that farmers should be able to get artificial manures tested previous to purchasing the same. In this country, in the majority of cases, the trouble is considered too great; there is an idea that the charges are very high, and a sort of vague feeling "that it means a lot of bother." Very different indeed is the case on the other side of the Atlantic.

At the New York Agricultural Experimental Station, Geneva, N.Y., the State provides an excellent staff, including specialists, six chemists, with Dr. Peter Collier as the director of the Station. Here analyses are performed free of cost, and the Bulletin, containing much valuable information for agriculturists, can likewise be obtained for nothing on application.

How great an influence for good an institution of this kind is capable of influencing upon the tone of the manure trade, a glance at the monthly reports will clearly show. All sides receive attention; and, judging from the results of over one hundred samples of all kinds of manures which have recently been published in the Bulletin, it would seem that there is no great, if any, need for a bill to prevent the adulteration of commercial fertilizers on "the other side."

Out of the 108 samples analysed—comparing the results obtained with guaranteed contents—there is not one bad instance of deficit, while many others show more than is guaranteed.

Superphosphates are perhaps the least satisfactory, since they show the larger discrepancies, as a general rule the phosphoric acid being lower than it is specified. On the other hand, the soluble potash is higher, while many treated supers, such as nitrogenized or ammoniated superphosphates, show percentages higher all round than the guaranteed contents call for. The general run of the other commercial fertilizers are above the average, the cases where the amount of nitrogen, phosphoric acid, and potash is below that stated to be present being very exceptional.

And further more, there are many manures, especially ammoniated wheat manures and potato manure, which are

distinctly superior to what they purport to be. Illustrative of this we give the following analyses, which are but two from among many :—

| | Potato Manure Average of Four Samples. | | Perennial Grain Fertilizer. | |
|---|---|---|---|---|
| | Found. | Guaranteed. | Found. | Guaranteed. |
| | % | % | % | % |
| Nitrogen as $NH_3$ ... | 5·63 | 4·5 | 4·18 | 4·0 to 5·0 |
| $H_3PO_4$ Available ... | 6·47 | 5·5 | 11·92 | — |
| $H_3PO_4$ Total ... | 6·75 | — | 18·20 | 14·5 to 16 |
| $K_2O$ sol. in $OH_2$ ... | 11·21 | 10·0 | 7·05 | 7·0 to 8·0 |

It would be a work of great interest to take independent samples in a way similar to that by which the foregoing were obtained, and to see how many samples in this country would show that they contained more than they were supposed to.

And yet why cannot such useful work be done? We have our agricultural colleges in different parts of the country, our professors, and agricultural extension lectures, but we do not seem to derive the same practical benefits as our American cousins. It needs no Act of Parliament to sanction work such as is carried on at the New York Station. On the contrary, as we have so often stated, it would be far better if these things were not solely under State control. We do not go so far as to advocate the free analysis of manures, but if part of the money granted by Government was devoted to some purpose, instead of to satisfying the needs of that peculiar craze of the age (which might be of the same species as the ramigerous octopus, so numerous are its off-shoots), Higher, Technical, and Free Education, we think signal service would be done for the country; and we might obtain practical information for our money, instead of having to be contented to hear so much and see so little.

The Chemical Committee of the Royal Agricultural Society only two years ago calculated that two alone out of every hundred purchasers took the trouble to ascertain if the manure they were buying was good or not. It is to be hoped that the past two years have worked some improvement, yet if we could only utilize the means and talent which lie almost at our doors, and make our agricultural colleges experimental and investigating stations instead of landmarks of our ineptitude, there would be no need for the formulation of Acts of Parliament; and the Artificial Manures Bill, which last session was withdrawn, for reasons many and obvious, need never have seen the light. Manufacturers of commercial fertilizers would, we think, far rather have the standard of their trade improved, and the fraudulent element eliminated, than be tied down to the arbitrary holdings of an imperfect Act of Parliament.

## THE MERSEY AND IRWELL JOINT COMMITTEE.

THE above Committee held their usual monthly meeting on Tuesday last, at their offices in Mosley-street, Manchester, the chairman, the Rt. Hon. J. T. Hibbert, M.P., presiding.

The first business which was taken in hand was in reference to

THE PROCEEDINGS AGAINST BURY.

A letter was read by Mr. Hulton (clerk) from Mr. J. Maxwell, in which that gentleman said that had he been able to be present at the meeting he should have opposed any proposal to take proceedings against Bury. The opposition of the Bury Corporation to the Committee's bill in Parliament never had for its object procrastination. The people of Bury had good reason to object to any further expenditure on sanitary matters of this kind until the incidence of taxation had been altered—(laughter)—and their position was intended as the most public protest they could make. The Corporation, Mr. Maxwell added, had held meetings of their General Purposes Committee, and a resolution which would come before the Council this week had been passed recommending that the mandate of the Joint Committee should be at once obeyed. He had no doubt the resolution would be confirmed, and Bury would then be in a position to proceed. Any proceedings by the Joint Committee would fail to produce greater progress. A letter of earlier date was also read from the Town Clerk of Bury, stating that a scheme for the treatment of the sewage of the borough had been submitted to the Local Government Board, who had refused their sanction on the ground that the land was not sufficient to meet the requirements.

Mr. V. K. Armitage said that he did not see why Bury should be allowed to stand out in this way. The Committee had already had promises leading to nothing. Bury at least should be made to apply to the Committee—thereby admitting their default—for permission to delay, and the Committee would then consider the application upon its merits. The Committee were now in possession of their new weapon, and the sooner they tried it the better. He moved that notice be given to the Corporation of Bury that proceedings would be instituted for an offence against Part II. of the Act upon the expiration of one month, unless in the meantime an application were made to the Committee for time.

The Chairman did not think the course taken by Bury in opposing the Committee's bill in Parliament had laid upon the latter body the necessity of giving to that Corporation the same consideration as to another authority. At the same time he would be sorry if the Committee were thought to be dealing harshly with any case, but the question with respect to Bury was of so unsatisfactory a character that he would be inclined to support the motion. (Hear, hear.) He would be sorry if the Committee separated without taking some decided action. They had threatened it for some time, and he thought they ought now to put the law into action.

Mr. Alderman J. Thompson seconded the resolution, which was adopted unanimously.

A letter was then read from the Town Clerk of Macclesfield in reference to

THE MACCLESFIELD SCHEME,

stating that the Corporation had decided upon irrigation as their scheme for the disposal of sewage. An engineer had been appointed, and the Joint Committee might rely on an efficient scheme being carried out without delay.

Mr. Killick remarked that Macclesfield had sent a more satisfactory reply than Bury, and moved that the question of that borough be allowed to stand over for two months.

Mr. Rayner seconded, and the motion was adopted.

REPORT OF THE CHIEF INSPECTOR.

The chief inspector (Mr. R. A. Tatton) submitted his report, which stated :—"Messrs. R. Bell & Sons, Norden, against whom it was resolved at the last meeting that proceedings should be taken, have commenced the erection of a retaining wall to protect their tip. I think that further action against them will be unnecessary. Complaints have been made against several firms for putting cinders within reach of a flood; the cinders complained of have in all cases been removed. I have lately made an inspection of the Ashton Rural Sanitary Authority district with Mr. Kettlewell, the surveyor, with a view to ascertain which townships require providing with sewage works and which do not. The most populous part is that which lies on the main road between Ashton and Oldham, and includes the townships of Waterloo and Taunton with a population of 2,039, and Bardsley and Woodport with a population of 1,715. A scheme has been proposed for dealing with this sewage by means of a precipitation works on the banks of the Medlock, and I certainly consider that the authority should carry it out without delay. Another part of the district which should be provided with sewage works is the township of Tintwistle, near Mottram; this could probably be done without much difficulty below the reservoirs belonging to the Manchester Corporation. The remainder of the district is rural and does not require any sewage treatment at present. Since the last meeting I have made inquiries from each of the local authorities on whom notice was served in March last with a view to ascertaining what progress they have made in the direction of providing for sewage treatment since that time. I beg to lay a summary of these answers before you. They show that a very considerable movement has taken place, and that local authorities generally are waking up to a sense of their responsibility. The only authorities which make no pretence of any progress are Bury and Bollington, and I think nothing can be gained by delaying action in the case of Bury. Of the other authorities, it is difficult to imagine from some of the answers that much vigour is being brought to bear on the question, and perhaps the Committee will consider the expediency of defining a limit of time within which it is expected that all local authorities will have applied to the Local Government Board for sanction to their scheme. I beg to lay before you a circular letter which with your sanction I propose sending to each manufacturer on the watershed who pollutes the stream calling his attention to the Mersey and Irwell Joint Committee Act, 1892, and requesting him to carry out works for treating his effluent. I think some such communication is very desirable at the present time."

hairman added that the Committee had now reports from 24 es, showing a greater amount of activity than had previously The great thing would be to keep up that activity with the different authorities. He suggested that those authorities ave notice under the new Act giving them an opportunity to plication for time to carry out their works, so as to bring them e cognisance of the Committee from time to time. He moved e authorities, with the exception of Bollington, should have ths in which to make their applications.
as agreed to.

ACTION AGAINST BOLLINGTON.

. K. Armitage moved that notice should be sent to Bollington o that which the Committee had decided to send to Bury. n, he pointed out, had taken no notice whatever of the com- ons of the Committee.
ulton read a letter from a clerk to the Bollington Local Board terms :—"The amount of sludge from Bollington is so small almost inappreciable, and no steps have been taken in refer- t."
'atton stated that the population of Bollington was 3,900. ere some printworks in the locality.
ewitt seconded the proposition, which was adopted. On the of Dr. Hewitt it was also decided to authorise the Chief r to take proceedings in any case of river pollution by the of cinders or other solid matter into the streams. The n of the Chief Inspector to send a letter to each of the manu- in the watershed calling attention to the provisions of the new adopted.

A DEPUTATION FROM DUKINFIELD.

utation from the Local Board of Dukinfield (one of the 24 es mentioned by the Chairman), consisting of Mr. Taylor, tt, and other gentlemen, was received. The deputation d that Dukinfield was prepared to enter into a general district f sewage disposal as soon as its neighbours were ready.
hairman stated that the Committee were pleased to hear of ld's willingness to comply with their requirements. They had o give Dukinfield, along with other authorities, two months ake an application for power to delay the required works.

## HE USE OF COPPER SALTS FOR SPRAYING PLANTS.

T of the substances commonly used at present in spraying ants contain some compound of copper; in some instances the compounds and other necessary materials are purchased y, and the mixing is done at home, while in other cases, reparations, containing copper compounds and other essential ts, mixed ready for application, which are found in the market, The sale of copper compounds in the form of crude materials ecial preparations has increased enormously in the past year and, therefore, offers an inviting field for adulteration and n.
g the past year, the chemist at the New York Agricultural ent Station, which is under the direction of Dr. P. Collier, ined several copper compounds separately, and also some of ial preparations that are being put upon the market. The tion was undertaken with a view to finding out something in the following points :—
Whether copper compounds are adulterated.
To what extent they are adulterated, if at all.
Whether the special preparations put on the market are pure; whether they are mixed in proper proportions; and whether they are offered for sale at reasonable prices.
es of four different kinds of materials have been examined, as —
Copper sulphate in three different forms. (*a*) Crystals of copper sulphate. (*b*) Crystals of copper sulphate powdered. (*c*) Dried or anhydrous copper sulphate.
Copper carbonate in two forms. (*a*) Precipitated copper carbonate. (*b*) "Hydrated" copper carbonate.
A prepared mixture called "Copperdine," as put up for 1891 and for 1892. (*a*) Copperdine in dry form. (*b*) Copperdine in solution.
A sample of prepared Bordeaux mixture.

PROPERTIES OF COPPER SULPHATE.

ler that some of the points connected with the analysis of the amples of copper sulphate may be more clearly understood, a ements are made regarding some of the properties of copper before presenting the results of analysis.

Copper sulphate, commonly called blue vitriol, blue stone or copper vitriol, may occur in three forms or conditions. In the form with which we are most familiar, it appears in crystals, varying in size, of a beautiful blue colour. One hundred pounds of it contain the following amounts of different elements :—

| | |
|---|---|
| Copper | 25·4 lbs. |
| Sulphur | 12·8 ,, |
| Oxygen | 57·8 ,, |
| Hydrogen | 4·0 ,, |

The four pounds of hydrogen are combined with 32lbs. of the oxygen, forming 36lbs. of water, which is known commonly as water of crystallisation. The remaining 25·8lbs. of oxygen are combined with the sulphur in the same manner as in sulphuric acid, and the oxygen and sulphur, combined with the copper in the proportions above given, together with the water, form crystallised copper sulphate. Stating its composition in a somewhat different form, we can say that crystallised copper sulphate contains in one hundred pounds :—

| | |
|---|---|
| Copper | 25·4 lbs. |
| Sulphuric acid (combined) | 38·6 ,, |
| Water | 36·0 ,, |

Now, if we heat one hundred pounds of copper sulphate in an oven to the temperature of boiling water, the crystals will gradually lose their colour and crumble to pieces, leaving a bluish-white powder. At this temperature twenty-nine of the thirty-six pounds of water are driven off. If this powder is heated to 400° F., the remaining seven pounds of water will be driven off and we shall obtain a white powder, which is called *anhydrous* or *dehydrated copper sulphate;* that is, copper sulphate free from water. This form of copper sulphate is being put upon the market for spraying mixtures. It has the advantage of being in a finely powdered condition and in a more concentrated form, containing, as it does if pure, forty pounds of copper per hundred. It possesses the disadvantage of absorbing moisture from the air rapidly, which renders its composition uncertain.

ANALYSES OF COPPER SULPHATE.

The samples tested which were seven in number, were for the most part good. Two contained 99·6% of $CuSO_4$. The powdered samples were found to contain more dirt and a lower percentage of $CuSO_4$ than the crystallized samples, while one sample contained a considerable amount of free acid. The presence of free acid, however, is not objectionable if the copper sulphate is intended for the preparation of Bordeaux mixture.

PROPERTIES OF COPPER CARBONATE.

Copper carbonate is a somewhat complex chemical compound, and it would take us too far into chemistry to attempt to explain its composition in detail. Suffice it to say that most of the copper carbonate we have to deal with contains, if pure, in one hundred pounds—

| | |
|---|---|
| Copper | 57·4 lbs. |
| Carbon | 5·4 ,, |
| Oxygen | 36·3 ,, |
| Hydrogen | 0·9 ,, |

It is known in nature in crystalline form under the name of Malachite. Copper carbonate when made by precipitation, as is the case in the common methods of artificial preparation, is a greenish powder. Unless thoroughly washed it will contain some sulphate when made in the ordinary way. The sulphate probably does no harm in spraying mixtures when the quantity is small.

ANALYSES OF COPPER CARBONATE.

The results of these analyses were not so satisfactory as those of the sulphate. Four samples were tested. Of these two tested 88·1% and 89·4% of carbonate. The lower of the two was free from dirt, while the higher contained sulphate and did not dissolve to a clear solution in acids. The third sample contained 62·8% of carbonate and also a large percentage of a white powder insoluble in nitric acid pointing to serious adulteration. The value of such a sample, taking the pure salt at 1s. 8d. a pound, would not be worth more than 1s. The fourth sample was called "Hydrated" copper carbonate, and contained only 59·4%, the difference being chiefly due to water.

ANALYSES OF COPPERDINE.

The first sample of copperdine analysed was in the dry form, prepared for the season 1891. It was put up in a two pound can and claimed to be a mixture of ammonium and copper carbonates in the proportions recommended by the United States Department of Agriculture. The price of the two pound can was 75 cents. The materials were not well mixed, so that in order to obtain a fair sample for analysis, over half of the contents of the can were removed and mixed thoroughly; from this a sample was taken for analysis. The mixture, on analysis, was found to contain nearly 7 per cent. of copper, which would be equivalent to about 8¾ ounces of copper sulphate, or to about 4 ounces of copper carbonate. The two pounds of dry copperdine, therefore, contained about 4 ounces of copper carbonate and 28

ounces of ammonium carbonate. If these materials were purchased at retail at a drug store in Geneva, N.Y., they would cost as follows :—

4 ounces of copper carbonate at 40 cts per lb..... 10 cts.
28 ounces ammonium carbonate at 11 cts. per lb. .... 19 cts.

Total cost of materials in 2 pounds of dry copperdine.. 29 cts.

If the copper carbonate were made from copper sulphate and sal soda, the cost of 4 ounces would be about 4 cents. instead of 10 cents, and this would reduce the cost of two pounds of copperdine to 23 cents. Allowing for the cost of mixing, which is very slight, and of the tin can, in which the material is put up, two pounds of copperdine can hardly cost the manufacturer more than 30 or 35 cents. As each two-pound can sells for 75 cents, the margin of profit is not difficult to calculate.

Another question arises in connection with the use of this mixture, and that is this: "Is it properly prepared, so that, when used in accordance with the directions given, it will not be too weak or too strong?" The directions on the can indicate that the two pounds of material are to be dissolved in 40 gallons of water, making an equivalent of about one ounce of copper carbonate to 10 gallons of water, which is the exact strength recommended by the U. S. Department of Agriculture.

The mixture easily dissolved in water, forming a clear solution. While this preparation is properly made so far as regards strength, the fruit growers can decide whether it is the most economical form to purchase for use.

2. Another sample of dry copperdine, as prepared for the season of 1892, was examined. Its general characteristics were like those of the first sample. It was found to contain 7·35 per cent. of copper, equivalent to about one-tenth of an ounce more of copper than the first sample. It was found to contain some sulphate. When dissolved in water, the solution was turbid and dirty. This sample was sent out under the name of "Ammoniated Carbonate of Copper."

3. The "Liquid Copperdine," as put up for 1891, was found to contain 2 per cent. of copper, equivalent to about 1⅛ ounces of copper carbonate. The liquid form, therefore, contained a little more than one-fourth the copper carbonate contained in the dry form. The cost of its materials, reckoned on the same basis, would be 8½ cents. Allowing for cost of mixing and of can, the total cost of two pounds of "Liquid Copperdine" might, perhaps, approximate as high as 12 or 15 cents. Each two-pound can sold for 50 cents, giving a considerably increased rate of profit, even over the dry form.

As regards its strength, when used according to directions, the liquid form as put up for 1891 was found too dilute. The directions for using are to dilute the contents of one two-pound can in seven bucketfuls of water, which may mean anywhere from 20 to 30 gallons. Taking the lower number, we should then have an equivalent of 1⅛ ounces of copper carbonate to 20 gallons of water, while the official proportions are an equivalent of one ounce of copper carbonate in 10 gallons of water. The solution made from this "Liquid Copperdine" for 1891 was, therefore, only about half as strong as the official solution; and, if one used 30 gallons of water for dilution, then the solution would be only one-third as strong as it should be.

4. A sample of "Liquid Copperdine," as prepared for the season of 1892, was also examined. It was found to contain 4·73 per cent. of copper, or nearly two and one-half times as much copper as the sample prepared for 1891. This mixture is, therefore, of proper concentration. It is a solution of copper carbonate in ammonia. It contained some sulphate.

ANALYSIS OF "PREPARED BORDEAUX MIXTURE."

This sample was from a lot prepared for the season of 1892. It is put up in dry form. It was found to contain 11·62 per cent. of copper. The official mixture contains 15·24 per cent. of copper. Hence this "prepared" Bordeaux mixture contains only 76·2 per cent. as much copper as it should contain. This may be due to incomplete mixing of materials.

SUMMARY OF RESULTS.

1. *Copper Sulphate*, in the form of large crystals, may be relied upon as being fairly pure; but, when it is in the form of powder, it is always safe to test its purity. The dried form of copper sulphate is objectionable on account of the uncertainty of its composition, which changes on exposure to air, and, being in a powdered form, it can readily be adulterated. The comparatively low price of copper sulphate does not offer the temptation for adulteration that the more expensive form of carbonate does.

2. *Copper Carbonate*, on account of its relatively high price and also on account of its finely divided condition, is, probably, quite liable to adulteration, and should always be tested. All the samples that were tested for sulphate showed its presence, but probably not to an injurious extent.

3. "*Copperdine*," in dry form, costs the fruit-grower twic as he himself could prepare it for, but contains the proper copper.

"Copperdine" in liquid form, as put up in 1891, cost thre times as much as it could be prepared for, and contained onl or one-third as much copper as it should. It was therefore w worthless because misleading to the fruit grower. How sample for 1892 proved to be up to the official strength. Th of copperdine for 1892 showed the presence of sulphates.

4. The "prepared" Bordeaux mixture for 1892 does not be up to the required official strength.

## THE MANCHESTER SEWAGE WORK

IT is with more than usual interest that the doings of large watched in reference to their sewage disposal, especially subject has become such an urgent and important matter week a party of gentlemen, chiefly composed of members of Council, visited the new sewers and works of the Manchester tion. The party was conveyed in omnibuses to the Stret section, and there a descent of some forty feet was made int sewer. From Stretford-road the party drove to Stretford, inspection was made of the interesting arrangements for dea the storm overflow. Re-entering the omnibuses, the visit driven to the outfall works at Davyhulme, which may be sai formed the most interesting part of the day's tour. Here, earlier portions of the journey, Mr. Allison, the city surveyor, the various features of the work. The settling tanks are very e and they are surrounded with very thick walls. Before th enters the tanks it will be treated for a while with a mixture of sulphate of alumina, but eventually it is intended to use such as the experience gained in Salford and elsewhere may show most efficient. After leaving the settling tanks, the effluent, as thoroughly as possible, will flow into the Ship Canal belo locks. How the problem connected with the sludge will be d is not yet definitely known. The Corporation has in the i vicinity of the outfall works a great stretch of land which is a adapted for filter beds, and this will for a time form a suitable r for the sludge. Negotiations are in progress with the Sh Company for the construction of a wharf from which this slu be shipped, should that be considered desirable, and at w supplies of lime and coal needed at the outfall works may b It is expected that the works will be opened in the cours year.

## THE MANUFACTURE OF PURE LIQU AMMONIA.

IN a paper on the Composition of the Liquid Ammonia of C and How to Manufacture Liquid Ammonia of 99·995 p read before the Chemical Section of the Franklin Instit Hans von Strombeck says: If the liquid ammonia of the trad is generally labelled and advertised as chemically pure anhyd per cent., is allowed to evaporate, a yellow fluid of peculiar pe odour and basic reaction is left in the bottle. This residue wa any liquid ammonia which I subjected to the test, though been manufactured of different raw materials and by different p But the quantities left by different liquid ammonias were quite It is necessary to connect a long spiral cooler with the bottle evaporation takes place and to surround the cooler with a refr mixture, as otherwise a large percentage of the yellow fluid i away by the evaporating ammonia. Sometimes also whit shaped crystals are left by the evaporating ammonia, which a deposited on the lower parts of the walls, partly swim o dissolved in the above-said fluid. These crystals consist o carbonate or hartshorn salt of ammonia $(NH_4)_2CO_3 + NH_4H$

While this salt was present in every liquid ammonia analyse not appear in crystalline form every time. The basic reactio above-said yellow fluid is due to ammonia absorbed by the sa supersaturation with dry muriatic acid, and removing the quicklime, a yellow neutral fluid is obtained. The yellow colo to the presence of mineral (lubricant) oil. By distillation unde pressure, the latter can be separated out at 200 mm. pressure 106° and 122° F., a colourless fluid being obtained in the while all the oil remains in the still. Besides the presence of salt of ammonia, mineral oil, and "colourless fluid," as I shall this paper, the liquid ammonia of the trade is contaminated by and suspended mineral matter, the latter consisting of sand, of iron, etc. The mineral matter of sample B contained also of iron.

the analysis of six samples of so-called anhydrous liquid 100 per cent, manufactured of different raw material by processes :—

| | A. | B. | C. | D. | E. | F. |
|---|---|---|---|---|---|---|
| | percent. | percent. | percent. | percent. | percent. | percent. |
| (by ice) . . | 98·976 | 96·984 | 98 220 | 99 792 | 99·321 | 99,180 |
| . . . . | 0·040 | 0·024 | 0·079 | 0·078 | 0·010 | 0·032 |
| s fluid . | 0·950 | 2·880 | 1·644 | 0·117 | 0 622 | 0 666 |
| n salt onia. . | 0·030 | 0 099 | 0 049 | 0·004 | 0·043 | 0·087 |
| t oil . . | 0·004 | 0 006 | 0·005 | 0·009 | 0·004 | 0 035 |
| natter . | traces | 0·007 | 0·003 | traces | traces | traces |
| | 100·000 | 100·000 | 100·000 | 100·000 | 100·000 | 100·000 |

olourless fluid was further investigated. It has a specific f 0·7948 at 60°F. ; it is miscible with water, burns with little flame, has a specific odour reminding of alcohol and ketone. l to distillation in fractions at atmospheric pressure (758 mm.),

| | | | | | |
|---|---|---|---|---|---|
| 5% | between 136° and 153°F. | | specific gravity at 60°F. | | 0·8048 |
| 0 | ,, 153° ,, 165° | | ,, | ,, | 0·8077 |
| 9 | ,, 165° ,, 172° | | ,, | ,, | 0 8016 |
| 6 | ,, 172° ,, 180° | | ,, | ,, | 0·7901 |

consisting of (1) methyl alcohol and acetone ; (2) methyl and ohol ; (3) ethyl-alcohol ; (4) isopropyl alcohol.

action for ketones was also given by fraction No. 2 ; traces o be detected in fraction No. 3. The ketones present can cetone and methylethylketone. Besides also traces of ethers resent.

mposition of the various colourless fluids is slightly different, of them or one of its fractions is brought into contact with sodium, the whole mass at once congeals to a more or less owder, hydrogen at the same time being evolved, according uation :—

$$\overbrace{1)\ CH_3.OH + CH_3.CO.CH_3}^{Fraction\ 1} + \overbrace{CH_3.OH + C_2H_5.OH}^{Fraction\ 2} +$$

$$\overbrace{C_2H_5.OH}^{Fraction\ 3} + \overbrace{CH_3.CH.OH.CH_3}^{Fraction\ 4} + 2Na_2 =$$

$$CH_3.ONa + CH_3.CO.CH_2Na + CH_3.ONa + C_2H_5.ONa +$$

$$C_2H_5.ONa + CH_3.CH.ONa\ CH_3 + 2H_2$$

he constitution of the sodium acetone compound which is only ical interest, I refer to *Liebig's Ann Chem*, *1891*, *266*, *1*.

uppose the fractions containing two different bodies to consist parts of each, and calculate the hydrogen which ought to be y the decomposition of one part by weight of colourless fluid lic sodium, we find that 0·0179 parts by weight of hydrogen be evolved. By test I found as average of four determinations part by weight of colourless fluid evolves 0·0166 parts by f hydrogen or ninety-three per cent. of the calculated quantity. nto consideration that the supposition on which the calculation d is somewhat arbitrary, a better agreement can hardly be . As one part by weight of hydrogen requires twenty-three weight of metallic sodium for its evolution, one pound of s fluid requires 0·38 pound of metallic sodium for its transfor- nto solid sodium compound.

ction similar to that between colourless fluid and metallic akes places between the latter body and two of the other above- d contaminations of liquid ammonia, viz. : moisture and harts- s of ammonia according to the equations.

$$H_2O + Na_2 = 2NaOH + H_2$$

$$[(NH_4)_2CO_3 + NH_4HCO_3] + 2Na_2 = 3NH_3 + 2Na_2CO_3$$

on the reactions which have been given in these three s, I devised a process for the manufacture of liquid ammonia the average contains 99·995% of ammonia, 0·005% of mineral nothing else (U. S. Patent 477,089), the removal of the oil possible, because of its chemical nature.

THE PROCESS.

mmonia gas which has been manufactured by one of the usual s, and which has been already freed of the bulk of its moisture, f being directly drawn into the compressor, is first led through filled with molten metallic sodium. Here in this vessel the described in the above three equations take place, whereby minations present are transformed into solid non-volatile bodies ain in this vessel, only ammonia gas and the hydrogen evolved out of the same. The melting point of metallic sodium being , it can easily be kept in a molten state by return steam irculates through a jacket surrounding the vessel with the sodium. The ammonia is better led through two such vessels so as to make sure that all metallic sodium in the first one is exhausted before it is filled anew. By suitable connections the ammonia can be made to enter either vessel first or last. From the second vessel the now perfectly pure ammonia gas is drawn into the compressor and transformed into liquid in the usual way. From this description it will be seen that the apparatus required is of the simplest kind imaginable.

I first thought of bringing the ammonia gas into contact with solid metallic sodium spread out on trays. But the reaction between the ammonia and the metallic sodium only taking place as long as the surface of the latter is metallic, a somewhat complicated apparatus would have been required to meet this purpose. Knives and scoops would have had to be arranged in a drum in such a manner that the former continuously cut the metallic sodium to infinitesimally small pieces, while the latter carry them upward and drop them after they have reached an about perpendicular position, the ammonia gas thus having to pass through a constant shower of sodium with fresh metallic surfaces.

The hydrogen evolved is to be removed, as otherwise the engine working the compressor would have to perform useless work by the compression of the same. A very appropriate way to remove it is to have the purified ammonia gas and the hydrogen pass over palladium-black or palladium-gauze, each of which readily absorbs all hydrogen. Though palladium is a rather expensive article, one pound costing about £80, its expensiveness is counterbalanced by the fact that the same quantity of palladium can be used for an indefinite time. If heavily charged with hydrogen, it is only necessary to shut off by suitably arranged cocks the communication between the pipe filled with palladium and the rest of the plant and to lead atmospheric air through this pipe, whereby the palladium-black or gauze loses all hydrogen absorbed and is ready for use again. As one volume of palladium absorbs 800 volumes of hydrogen I do not think that even for a large plant more than one-half pound of palladium is required, as in the immensely finely distributed form in which it is used a small mass obtains an immensely large surface.

Now, let us see how much the cost caused by this purification process is. Let us make this calculation for an ammonia which, manufactured in the usual way, has the following composition, viz. :—

| | |
|---|---|
| Ammonia | 78·975 |
| Moisture | 0·040 |
| Colourless fluid | 0·950 |
| Hartshorn salt of ammonia | 0·030 |
| Lubricant oil | 0·004 |
| Mineral matter | traces |

Having above stated that one pound of colourless fluid requires 0·38 pound of metallic sodium, 0·36 pound of it is here required. One pound of metallic sodium costing $1·20,* the quantity required costs forty-three cents. The metallic sodium required for the removal of each one hundredth of one per cent. of moisture costing 1 6 cents, and that for the removal of each one hundredth of one per cent. of hartshorn salt costing 0·7 cents, the total expense for metallic sodium is fifty-two cents per 100 pounds of liquid ammonia. But 100 pounds of the ammonia in question yielding only 98·976 pounds of chemically pure ammonia, there is a loss of 1·024 per cent. The price of one pound of liquid ammonia being about thirty-five cents, this loss is equal to thirty-six cents. Or, the total increase of the manufacturing cost for 100 pounds is eighty-eight cents. But for this slight increase of cost we obtain a liquid ammonia which contains 99·996 per cent. of ammonia instead of the 98·976 per cent. as at present, and therefore will easily command a much higher market price.

In this calculation the sodium alcoholates resulting by the action of the metallic sodium on the colourless fluid are considered to be without any commercial value. But this is not so. By addition of water to the sodium alcoholates, and distilling with return steam the whole quantity of alcohols which was present in the raw material can be regained, and by introducing its market value into the calculation, the above stated increase of manufacturing cost will be considerably lessened.

While thus by my new process at a slight increase of cost liquid ammonia of 99·995 per cent. is obtained, the refrigerating power of which is, of course, superior to that of the present commercial liquid ammonia, and thus the liquid ammonia sold as "strictly chemically pure anhydrous 100 per cent." really is what it is represented to be, there is still another point worthy of consideration. Every one connected with the refrigerating business knows of the terrific explosions which now and then occur in refrigerating plants, and for which heretofore no plausible cause could be given. While I cannot positively say how these explosions originate, I should think that the presence of such imflammable bodies as alcohols and ketones point to where the cause for those explosions may be looked for. It is not at all necessary, or not even likely, that the alcohols, etc., in their present

* Metallic sodium can be bought in England at Oldbury, for 2s. 10d. per lb., *vide C. T. J.*, No. 249, p. 150.—Ed. *C. T. J.*

form cause the explosions, but after being decomposed into hydrocarbons, etc., the latter may do so. As answer to the question of how under the conditions given in a refrigerating plant, such a decomposition can take place, I would say that this can be done by the thermo-electricity developed by the ammonia condenser. The iron return bends being tightened to the iron pipes of such a condenser by means of tin solder; and, because of the current of the ammonia gas or liquid ammonia respectively through the condenser, the tin solderings on one side of the iron pipes being colder than the tin solderings on the other side of said pipes, and the end of the condenser where the liquid ammonia leaves the same, being connected by pipes with the end where the ammonia gas enters the same, all the conditions necessary for the development of thermo-electricity are given. The electro-motive force thus developed is, of course, only very small, but in the course of time enough hydrocarbons, etc., may be generated, which, after being brought to explosion, may shatter the strongest iron pipe.

I intend to try to find out by experiment whether or not this supposition of mine be correct.

## POLLUTED DRINKING WATER IN CHESHIRE.

MR. J. C. Bell, the Cheshire county analyst, in his quarterly report to the County Council, makes some observations as to the dangerous state of the domestic water supply in several parts of the county. He states that of 29 samples of water, which he had examined, only 10 were what he could call good, 12 were bad, and 7 very bad—indeed the seven were not equal in purity to the effluents from the Salford sewage, and it need not be a subject of wonderment if illness and death should be caused by the drinking of such polluted water. At a recent inquest, in the county evidence was given that the death of a child was due to the foul state of the water. Surely, he says, a little technical education might be given to cottagers on the construction of a simple filter out of a flower pot. For a few pence a most efficient filter could be made by means of a flower pot, some sand, and magnetic oxide of iron or polarite, which could be purchased for about 1d. a pound. If in very bad cases the water were boiled and passed through such a filter, it would, practically speaking, be pure and fit for domestic use; in ordinary cases it would be sufficient to pass the water through the filter. Lately, he adds, he has been making experiments upon the foul waters of the Irwell, Irk, and Medlock, purifying them by passing the water through a drain pipe containing sand and magnetic oxide of iron, and the purification which was effected amounted to something like 90 per cent. Seeing that a filter can be so cheaply made, he concludes, there is no reason why every cottager should not have one at his cottage door.

## CHESTNUT-BARK TANNIN.

By Henry Trimble.

IN the manufacture of chestnut extract the bark and wood are used together, the latter naturally exceeding the former in amount, as well as in yield of extract.

In a paper on this subject read before the chemical section of the Franklin Institute, the author says:—It has been thought desirable to determine if there exists any difference in the character of the tannins from these two parts of the tree, and the results of an investigation of that from the wood were published in this *Journal*, 264, p. 393.

The material in this case was obtained from a tree thirty years old, cut in August; the bark was immediately removed, air dried and powdered.

The total tannin was found to be 7·31 per cent. The wood yielded 7·85 per cent. The other important constituents in the bark were found to be in per cent., 1·09 of resin, 3·06 of mucilage, 1·35 of glucose, 10·00 of moisture, 4·71 of ash and 45·44 of cellulose.

The tannin, as extracted by commercial ether, was much darker in colour than that similarly prepared from the wood, but an equally light coloured product was obtained by first precipitating in fractions with lead acetate, and then further treating the middle and most abundant one with salt and acetic ether. The aqueous solution of this portion, after removal of lead by hydrogen sulphide, when saturated with common salt, separated a dark-coloured portion which rose to the top, and was easily removed in one mass after standing twenty-four hours. The remaining light-coloured solution was agitated with acetic ether, the latter separated, and after removal of the solvent under reduced pressure, a light-coloured product was obtained. This was then dissolved in water, filtered and the solvent distilled off under reduced pressure; it was then dissolved in ether, filtered and again dried in a vacuum at the temperature of a boiling water-bath.

The product was a light, almost white porous mass of a brown shade, which was completely and readily soluble in w the other usual solvents, and in all other respects correspond the chestnut-wood tannin described in the previous paper, a with gallotannic acid. It did not give any reaction for gluco which compound it was rather more easily purified than the from the wood.

The average of two closely agreeing combustions gave the f percentages, with which are given those from the tannin of th for comparison:—

| | Chestnut-bark Tannin. | Chestnu Tanni |
|---|---|---|
| C, | 52·42 | 52·1 |
| H, | 4·67 | 4·4 |
| O, | 42·91 | 43·4 |
| | 100·00 | 100·0 |

The conclusions to be drawn from this work are that the from chestnut bark and wood are identical, and although analyses show high percentages of hydrogen in both they are to be identical with gallotannic acid.

In an investigation of the darker tannin precipitated from solution by salt the following percentages were obtained:—

| | |
|---|---|
| C, | 53·18 |
| H, | 4·72 |
| O, | 40·10 |
| | 100·00 |

This product was considered to be a mixture of the tannin anhydride.

## THE COMMERCIAL QUALITATIVE ANAL OF FATS OR OILS.

By H. N. Warren.

AN admixture of fats containing, after rendering, a numbe stearines, and oleates, such as is often purchased to be either for the manufacture of candles or soap, presents even practical chemist a difficult task as regards the analysis of t It is hard to arrive at a speedy conclusion as to what proces the so-called products through in order to render them ma The true specific gravity and melting point of fatty acids after cation, give, in some instances, valuable indications; but mo technically speaking, they are absolutely worthless.

All oils are not saponified with equal facility; here an fractional saponification might at once suggest itself. For olive and almond oils are most readily saponified; thus, by asc the most favourable temperature at which these oils saponify admixture, their separation may be at once partially effect indicating the modification the composition of the sample may by either introducing hard or soft glycerides, to effect its utility. Fish oil is difficult to convert into soap, but mixe still more refractory, thereby resisting saponification to a greate Hence by acting upon portions of the sample with the same st alkali, using two solutions, in the first instance a soda solu secondly one of potash; testing the saponified portion thus as also the unsaponified portion, and afterwards prolonging th If necessary, with similar testing, an almost complete separatio obtained, or in most cases sufficient for technical purposes.

## MORTAR CHEMICALLY CONSIDERED

By John Hughes, F.C.S.

THE analysis of ancient mortars is a subject which is likely valuable information upon the best method of making m the present day. We have already referred to this subject columns (No. 91, p. 98), and doubtless the following artic comes from one who has made a special study of this sub prove interesting. In former papers the author has called to his work on ancient mortars and the following is a further tion which appeared some short time since in the Builder.

In this communication the author adds the results of eight analyses of average specimens of the mortar authentically from the buildings named in the table which appears below.

It should be mentioned that the analyses in the table rep far as possible, the average composition of the mortar, and m isolated pieces, the samples analysed being prepared from the up portion of a great number of small particles taken from

parts of the ruins, except in Nos. 2 and 4. In arranging the results the total amount of lime is first stated separately, and then for convenience of reference the proportions assumed to be present as carbonate, caustic, sulphate, and otherwise combined are added at the bottom of the table.

The largest quantity of lime (34·46 per cent.) occurs in specimen No. 6 from Glastonbury Abbey, and the smallest quantity (10·59) in No. 7 from Glendalough Church (in ruins), County Wicklow. A large proportion of lime, however, does not necessarily imply that the mortar is of the highest quality, for the proportion of caustic lime is practically unappreciable, and that most of the lime exists now as carbonate; also, that after allowing for the lime as sulphate, there still remains an excess of lime which is probably present in combination with gelatinous silica and alumina, as existing in Portland cement.

The proportion of magnesia is very small in all these eight specimens, the amount being less than ½ per cent., except in that from Caerphilly Castle, where we find 1·87. It is interesting to bear this in mind after what has been written in reference to the presence of magnesia in some Portland cement used in the Aberdeen harbour works.

The proportions of oxide of iron and alumina are higher in the specimens of good mortar, such as Nos. 2, 6, 4, 1, and 8, than in Nos. 5 and 7, which represent the inferior quality, while No. 3 may be regarded as of medium quality, and has 1·35 oxide of iron and ·80 alumina.

Sulphuric acid is 1·37 in No. 1 and ·26 in No. 8, both specimens being regarded as of superior quality.

Chlorine varies considerably, the higher quantities being doubtless due to local circumstances, such as proximity to the sea or tidal rivers, but the variations are of no consequence in this particular inquiry.

The relative amount, however, of gelatinous silica soluble in a 10 per cent. solution of caustic soda is a point of considerable importance in determining the quality of a mortar. For the information of other investigators, it may be here stated that two grammes of the finely ground mortar were first evaporated with HCl. acid to complete dryness in a water bath, the insoluble residue was then treated with dilute hydrochloric acid, and the total insoluble matters filtered off, burned, and weighed. This was then boiled for half an hour with 100 c.c. of a 10 per cent. solution of caustic soda, which dissolves all the gelatinous or amorphous silica, leaving the crystalline and coarser sand unaffected, and if this latter be weighed the difference between the original weight gives the amount of so-called soluble silica. It is in this form that most of the silica exists in Portland cement, the actual figures being from 20 to 22 per cent.

It will be noticed that this gelatinous silica is highest in specimen No. 2, namely, 9·85, which is very nearly half as much as occurs in the best Portland cement.

No. 8 comes next, with 7·50; then No. 4, with 7·10; and No. 1, with 6·20; also No. 6, with 6·10; afterwards No. 3, with 4·10; No. 7, with 3·90; and last, No. 5, with only 1·60 per cent.

In the analysis of limestone intended for making lime for building purposes, it would be desirable to specially determine the amount of gelatinous silica present, inasmuch as the best building limes no doubt possess to a considerable extent the properties of a cement.

Having now briefly reviewed the characteristics of the eight specimens, what are the practical conclusions to be drawn from these analyses?

1. That the actual amount of lime present in a mortar may vary very considerably, but that within certain limits the quality of the lime is of as great importance as the quantity,—indeed, a smaller quantity of well-prepared good lime is much more effectual than a larger quantity of a badly-prepared or naturally inferior lime.

2. That the proportions of sand may also vary considerably, even in really good mortar, and that while it is always desirable that it should be rough, irregular in size, and with sharp edges, rather than be smooth and round, still that, on the whole, the quality of the sand is not of so much importance as the quality of the lime.

3. That the presence of oxide of iron and alumina in a form readily combined with silica is not to be objected to in good building lime, indeed, that the purest limestones are by no means the best for making superior lime for building purposes.

4. That the higher the proportion of amorphous or gelatinous silica soluble in alkali, the better the quality of the mortar, and, as this kind of silica is associated originally with the lime, rather than with the sand, it becomes of the greatest importance that the character and composition of the lime intended to be used should be fully inquired into; and the best possible quality in the neighbourhood always selected by the architect and used by the builder.

ANALYSES OF ANCIENT MORTAR.

| | No. 1. Tintern Abbey. | No. 2. Caerphilly Castle. | No. 3. Raglan Castle. | No. 4. Giant's Tank, Ceylon. | No. 5. Rochester Castle. | No. 6. Glastonbury Abbey. | No. 7. Glendalough Church, Ireland. | No. 8. Corfe Castle. |
|---|---|---|---|---|---|---|---|---|
| Probable date of erection, about A.D. | 1269 | 1200 | 1200 | 1250 | 1088 | 1246 | Not known. | 1000 |
| Water (lost at 212°F) | 1·72 | 2·60 | 1·36 | 1·18 | ·36 | 4·96 | ·55 | 2·42 |
| Combined water | 3·98 | 7·73 | 4·06 | 2·66 | 1·48 | 4·94 | 2·92 | 4·02 |
| ** Lime | 18·84 | 13·49 | 30·68 | 16·24 | 28 67 | 36·46 | 10·59 | 31·05 |
| Magnesia | ·32 | 1·87 | ·25 | ·36 | ·18 | ·45 | ·43 | ·28 |
| Potash | ·02 | ·22 | ·15 | ·30 | ·16 | ·33 | ·25 | ·20 |
| Soda | ·27 | ·29 | ·45 | ·17 | ·24 | 1·18 | ·13 | ·15 |
| Oxide of iron | 1·99 | 3·61 | 1·35 | 2·20 | ·40 | 3·60 | 1·58 | ·95 |
| Alumina | 1·36 | 1·34 | ·80 | 2·65 | ·30 | 1·45 | ·71 | ·15 |
| Sulphuric acid | 1·37 | ·34 | ·86 | ·58 | ·29 | ·89 | ·32 | ·26 |
| * Carbonic acid | 12·13 | 9·53 | 21·01 | 11·11 | 20·60 | 25·06 | 6·40 | 22·86 |
| Chlorine | ·13 | ·01 | ·15 | trace. | ·10 | ·88 | ·14 | ·65 |
| Gelatinous silica, soluble in alkali | 6·20 | 9·85 | 4·10 | 7·10 | 1·60 | 6·10 | 3·90 | 7·50 |
| Insoluble matters (sand) | 51·67 | 49·12 | 34·78 | 55·45 | 45·62 | 13·70 | 72·08 | 29·51 |
| | 100·00 | 100·00 | 100·00 | 100·00 | 100·00 | 100·00 | 100·00 | 100·00 |
| * Equal to carbonate of lime | 27·56 | 21·66 | 47·75 | 25·25 | 46·81 | 56·95 | 14·54 | 51·95 |
| ** Lime present as carbonate | 15·43 | 12·13 | 26·74 | 14·14 | 26·21 | 31·89 | 8·14 | 29·09 |
| ** Lime present as caustic | ·28 | ·56 | ·84 | ·56 | ·56 | ·56 | ·84 | ·28 |
| ** Lime present as sulphate | ·95 | ·23 | ·60 | ·40 | ·20 | ·62 | ·22 | ·18 |
| ** Lime present as silicate and otherwise combined | 2·18 | ·57 | 2·50 | 1·14 | 1·70 | 3·39 | 1·39 | 1·50 |
| | 18·84 | 13·49 | 30·68 | 16·24 | 28·67 | 36·46 | 10·59 | 31·05 |

T. W. Openshaw & Co.—This firm has made a deed of arrangement with the following creditors:—

| | | £ | s. | d. |
|---|---|---|---|---|
| Reid, J. A. | London | 77 | 5 | 10 |
| Ward, A. F. | Accrington | 21 | 9 | 10 |
| Whittaker, Henry | ,, | 16 | 4 | 2 |
| Adley, Tolkien & Co. | Blackburn | 93 | 17 | 5 |
| Furness, R. & Co. | Church | 156 | 2 | 5 |
| Haworth, John & Co. | ,, | 14 | 16 | 11 |
| Metcalf, William | ,, | 213 | 17 | 9 |
| Holmes, George & Co. | Hull | 12 | 0 | 4 |
| Mackay, George J. | Liverpool | 29 | 19 | 7 |
| Bayley, F. S. & Co. | Manchester | 51 | 14 | 4 |
| Shelton, G. & G. W. | ,, | 14 | 2 | 11 |
| Bankers' claims | | 850 | 1 | 1 |

The firm carried on business as chemical manufacturers at Heys, and 3, Hornby-street, Ostwaldtwistle.

# NOTICES.

## LONDON AGENTS.

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On usual trade terms.

## FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a CROSSED POSTAL ORDER is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

# Correspondence.

**** We do not hold ourselves responsible for the opinions expressed by our correspondents.*

## *ANSWERS TO CORRESPONDENTS.*

E. J. B.—Thanks for information. See this week's issue.
T. H. (Cardiff).—The missing numbers have been forwarded.
W. F. C.—The matter shall have our attention in due course.
D. H.—The change has been seen to.
L. L. (Italy).—There is no extra charge. The next volume will be sent you shortly.

## COTTON DYEING AND SEA-WRACK.

*(To the Editor of the Chemical Trade Journal.)*

Dear Sir,—As a subscriber to your valuable paper, I venture to ask a few questions through the medium of your journal, or otherwise; and upon receipt of charges will gladly remit.

1. Can you, or a reader of the "Chemical Trade Journal," give a recipe for dyeing a fast black on cotton?

2. Is a powdered glue made from sea wrack (fucus vesiculosus) on the English market, and where can it be purchased, and at what price per ton?

3. Where can dried sea-wrack (fucus vesiculosus) be bought in England, for export, in large quantities?

I shall be glad to remit for all trouble, etc., to above questions received either through your valuable paper, or direct correspondence, the latter preferred.

Yours, etc.,
JOHN A. JUST,
612, Turtle-st, Syracuse, New York, U.S.A.

[The correspondence columns of the "Chemical Trade Journal" are always open to subscribers free of any charge, and correspondence is invited.—Ed. *C.T.J.*]

# Trade Notes.

THE BADISCHE ANILIN U. SODA FABRIK *versus* SCHOTT SEGNER AND CO.—Judgment in this action has been given in favour of the plaintiffs, a result surprising to most of our subscribers to whom we have spoken. The effect of the judgment on British industry we will discuss in a future issue.

PERSONAL.—Doubtless many of our readers will be pleased to hear that Mr. Bostock Hill, the well-known public analyst, has been appointed analyst to the Warwickshire County Council, at a salary of three hundred and fifty pounds per annum. Mr. E. J. Bevan has also been appointed to the post of public analyst for the County Council of Middlesex, in the place of the late Dr. Redwood, the appointment having been sanctioned by the Local Government Board.

THE GERMAN CHEMICAL INDUSTRY.—The Kalk Ch Fabrik, near Cologne, formerly known as Messrs. Vorster & Gr & Co., is now a joint stock company. The Hermania Chemic Schönebeck has declared a dividend of 4 per cent., having du past year made £3,883. profit.

LIQUID CHLORINE.—A new departure in the method of chlorine on the market for the use of oil bleachers, manuf chemists and others, has been made by Messrs. Wm. Pick Kuttroff, of New York, agents for the Badische Anilin Soda who are now offering chlorine in the liquid form.

SURPLUS TAR AT SALFORD.—The tender of Messrs. H. L and Co., of Miles Platting, for the surplus tar at the Salford G has been accepted by the Gas Committee, and their acceptan firmed by the Council. The Corporation anticipate a consider of revenue, probably amounting to four thousand pounds ster account of the depreciation in the value of tar.

NEW USE FOR SACCHARIN.—The substitution of sacch sugar, in many industrial purposes, has been prevented by the it is incapable of fermentation. A new application, howeve being tried, the outcome of two years' experimenting, namely, saccharin in the fruit preserving trade. The results so far see satisfactory, and since fermentation is avoided should ultimate completely successful.

COAL AND PETROLEUM.—As our stock of coal is clearly po towards exhaustion, it is some comfort to learn on the author distinguished Russian chemist, Dr. Mendeléef, that there ground for believing that abundance of petroleum will a available. Rock oil, we are reminded, belongs to no particul though it is found generally in regions lying parallel to ranges. In Europe, for example, it is tapped in rocks of th period, but in the United States it rises out of Devonian Silurian formations. Dr. Mendeléef suggests that this valu giving substance is constantly being formed by the action of metallic deposits in the heated interior of the earth. The ext average persistence of the oil well supports, as is observe President of the Institution of Mechanical Engineers, the the is forming almost as fast as it is removed. The President look to improvements in boring appliances which will enable us to to depths undreamed of yet.

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

The benzol market remains in much the same state as q week; 90's could be bought for all this year at 1s. 7½d., an for 1s. 7d., while 50/90's are value for 1s. 3d. At these foreign carbonisers are having a lively time of it, and it is pro a limitation will be placed upon extensions. Several Engli ising works are stopped owing to the low prices, so that the cannot be abnormal at the moment.

The sulphate of ammonia market is dragging lifelessly a there is nothing to say respecting it, other than that £9 17 be styled the price for ordinary makes at all ports. Beck nominally at £10., but it is not certain that business is pas rate.

## REPORT ON MANURE MATERIAL.

During the week the market has presented a very holiday and there has not been much business passing. Prices of phatic and nitrogenous material are practically without altera

For Florida 75/80% mineral phosphate 9d. per unit is s but 8¼d. is probably nearest value. 8d. is asked for 70/ Pebble, but the price does not attract buyers, and 7¼d. accepted for 60%. Hot-air Peace River rock is held firmly There are sellers of hot-air dried South Carolina River roc per unit, and of Land rock at 7d., c.i.f. in cargoes to U Canadian rock is selling at 6½d. per unit; 10d. asked Continental phosphates offer freely, but without inducing muc owing no doubt to the large supplies and easy prices of F Carolina.

Cargoes of River Plate bones and bone ash are very scare do not hear of any further business. Nearest values for shi £4. 5s. for bones, and £3. 12s. 6d. for bone ash; the Hamburg terms. Crushed Kurrachee bones, for ship selling at £4. 2s. 6d. ex quay Liverpool. None offering Bombay bone meal, fair average quality, is quoted £4. 5s Liverpool, autumn shipment, and £4. 2s. 6d to £4. 10s.,

to quality, on spot. Common grinding bones are easier, and cannot be quoted over £3. 15s, though charring quality might fetch £4. ex quay.

Nitrate of soda is quiet, but fairly steady. On spot ordinary quality is selling at 8s. 3d. per cwt., and refined at 8s. 4½d. to 8s. 6d. Due cargoes of ordinary quality are scarcely worth over 8s. 1½d., but 8s. 4½d. to 8s. 6d. would have to be paid for refined. May and June sailings are worth 8s. 3d. to 8s 4½d., and later sailings 8s. 4½d to 8s. 7½d., ordinary quality.

Nothing to report in dried blood and miscellaneous manure material.

For superphosphates makers are inclined to meet buyers in regard to price, but for next season prices are scarcely as yet fixed.

## THE METAL MARKETS.

LONDON, Wednesday.—Pig iron steady. Scotch warrants closed at 41s. 10d. cash. Middlesbrough 38s. 6d. cash, and Hematite 49s. 9d. cash. Copper quiet: Chili bars, G.O.B.'s and G M.B.'s closed at £44. 12s. 6d cash, and £45. 2s. 6d. to £45. 10s. three months. Tin easier: Straits closed at £95. 15s to £96. 7s. 6d. cash, and £95. 10s. to £96. 2s. 6d. three months. Australian, £96 7s. 6d. cash. English ingots, £98. to £98. 10s. Lead weak: Spanish, £10. 10s.; English, £10. 12s 6d. to £10 15s. Silesian spelter, ordinary, £21. 12s. 6d. Quicksilver, first hands, £7. 2s. 6d., second hands, £6. 17s. 6d. *Copper shares* weak: Cape 1 9/16 to 1 11/16; Copiapo, 2 5/16 to 2 7/16; Libiola, 2¼ to 3; Mason and Barry, 3 11/16 to 3 13/16; Rio Tinto, 15 9/16 to 15 11/16; Tharsis, 4⅝ to 4¾; Namaqua, ¾ to 1.; Panulcillo, ⅜ to ½.

WOLVERHAMPTON, Wednesday.—Trade to-day showed a slight improvement in pig iron owing to smallness of supply and increased forward demand by consumers. Staffordshire medium and cinder pigs were worth more by 6d. to 1s. per ton. Native cinder pigs were quoted 37s. 6d., part mines about 45s., all mine hot blast 62s. 6d., and cold blast 95s. to 100s. Midlands are in tolerably good sale. Demand for finished iron quiet. Galvanised corrugated sheets are in demand nominally at £11. 12s. 6d. to £11. 15s.

GLASGOW, Wednesday.—Market easier for Scotch, with small business done at 42s. 1d. and 41s. 11d. cash; closing with buyers at 41s 10½d. cash and 42s. 1d. one month, sellers ask 41s. 11d. cash and 42s. 1½d. one month. Middlesbrough closes with buyers at 38s. 6d. cash, sellers ask 39s. 1½d. Hematite closes with buyers at 49s. 6d cash, sellers ask 50s.

## LIVERPOOL OIL AND COLOUR MARKET.

Wednesday.

OILS.—Palm oil still remains firm with Lagos at £20. 15s, but owing to the closing of the market for the holidays on Saturday and Monday last no sales are reported, and business generally is slow. Olive continues firm at the recent advance, but there has been little business doing. Linseed has a fair inquiry at the old prices, namely, 20s 3d. to 20s 6d per cwt., in export casks. Cottonseed: Liverpool refined is still quoted 19s 3d., while the figure for American is 20s.; higher grades according to quality are now, however, steady at 21s. to 24s. per cwt. In castor oil good seconds Calcutta remains firm at 2½d., whilst for first pressure French 2 11/16d. per lb. is still asked. Tallow has a moderate demand, prices for North being 22s. 6d. to 24s., according to quality, and South American 26s. 3d. to 26s. 9d. per cwt. Resin, common, is without change at 3s. 7½d. per cwt. Spirits of turpentine continue at 22s. 9d. to 23s., with a tendency to weaken, the nearest value to-day, perhaps, being 22s. 9d. Petroleum: American and Russian refined unaltered.

COLOURS unaltered. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s., medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: common, £6.; medium, £10.; finest, £20.

## MISCELLANEOUS CHEMICAL MARKET.

There are no material changes in values of any of the staple products of the alkali trade. Bleaching powder is firmly maintained at £7. 10s. nett, on rails at makers' works, and for caustic soda current quotations for 10 ton lots, are as follows, viz.: F.o b Tyne, 77%, £11. 15s; and f.o.b. Liverpool, 74%, £11. 5s.; 70%, £10. 5s.; 60%, £9. 2s 6d.; cream, 60%, £8 17s. 6d. In soda ash, Leblanc makes are well sold, and prices on the spot are 1⅜d. per degree, f.o.b. for carbonated, and 1 5/16d. for caustic. For ammonia ash 58%, 1 5/16d per degree, f.o.b. Liverpool. Soda crystals £2. 18s. to £3. 5s. at makers' works, according to package. Chlorate of soda, 8d. per lb. For chlorate of potash 6½d. to 6¾d. are current quotations. Sulphur quiet, and price for recovered £4 15s f.o.r. makers' works. Muriatic acid and vitriol are without change. Salt cake nominally 35s. to 36s per ton at makers' works. Nitrate of soda is reported rather firmer. Acetates of lime, brown and grey, are quiet on the spot, but the tendency is to higher prices for forward delivery In acetate of soda the advance is maintained, and price firm at £18. c.i.f. Acetate of lead still only in limited demand, both in brown and white qualities Nitrate of lead without improvement. Muriate of ammonia is exceedingly quiet, and nitrate of ammonia is in a similar position. Aniline oil and salt in limited demand. Inquiry for carbolic acids still continues fairly brisk, and there is business being done, generally, at better prices. Borax, 29s. nett per cwt. White arsenic has been more active in the past week, and spot value is £11. 17s. 6d to £12. at Garston. Potash, caustic and carbonate, continue to find ready sale, and prices, generally, are without change. In finer chemicals there is little movement in value, and upon the whole there is no material improvement in the state of the chemical trade.

## TYNE CHEMICAL REPORT.

Tuesday.

Chemicals remain unaltered. No change in prices. Bleaching powder in exceptional demand at £7. 10s. and £7. 12s. 6d. per ton nett.

Bleaching powder, softs, £7. 10s. and £7. 12s. 6d. per ton, and hards, £7. 15s. and £7. 17s. 6d. per ton; caustic soda, 77/76%, £11. 15s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £4. 17s. 6d. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton, in 10 ton lots; silicate of soda, 75° Tw. £3. per ton, 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per ton; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 7d. per lb. less 6%; pearl hardening, £3. 10s. per ton nett; pure white sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta crystals, £19. per ton; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; hydrate of barium, £11. per ton.

South Durham salt, 9s. 6d. to 10s. per ton, f.o.b. Tees.

Coal: There is a steady demand. Prices remain about the same. Best Durham gas coal, 9s. to 9s. 6d. per ton; best Northumberland steam, 10s. 6d. per ton; small steam, 4s. to 4s. 3d. per ton. Coke steady, 15s. 6d. per ton.

## THE LIVERPOOL MINERAL MARKET.

The market has continued to rule firm during the week. Manganese: Arrivals continue to be small, and prices are unaltered. Borate, 7d. per lb.; sulphate £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite: Raw lump, stocks large; prices quiet. Raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand) in demand at full figures; lump 20s., seconds 16s., and thirds 12s. French chalk: Arrivals still continue small; a good business, however, is doing at full prices. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump scarce at 90s. to 95s.; nuts, 70s. to 80s.; whilst finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore steady; Bilbao, more offering; Irish and Cumberland easier. Santander and manganiferous, there is more doing. Emerystone: Best brands in demand at full prices. No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal firmer. Chrome ore steady; prices firm. Antimony ore and metal flat; prices firmer. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. 10s. Calamine quiet. Strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese somewhat easier, but prices are

unchanged. Plumbago brisk. Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady; common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) steady; finest quality 22s. to 23s.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, Tuesday.

The feeling in sulphate of ammonia is feebler in this market, and the article is obtainable at present for £9. 15s. prompt without anything of the nature of difficulty, operators, for the time, having got quite past any talking of recovery.

There is descernible some slight improvement in the tone as regards the standard chemicals. Bleaching powder is scarce and briskly called for though not advanced in price, owing, it is stated, to the policy of the Union for the avoidance of further foreign competition. Soda crystals and ash are also reported as scarce, and the hot weather seriously interferes with production.

The situation continues unchanged in regard to the solid paraffins, there being nothing passing beyond a few trifling parcels for export. Makers and consumers are, however, to meet in about a fortnight hence, to see whether their differences cannot be overcome. Paraffin oils show some little more of life, but contracts for the supply of the coming season will not begin seriously for a month.

The Scotch whale fishing has proved a failure all round; one ship totally lost, and all poorly fished. Supplies of fish oils will therefore be small, and it is significant of the thoroughness of the failure that whalebone has been sold "to arrive" at £3,000. per ton.

Chief prices current are:—Soda crystals, £2. 17s. 6d., nett Tyne; alum in lump, £5. 10s., nett Glasgow; soda ash, 1⅜d., less 2½%, Tyne; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 15s. and 1 cwt. casks £7. nett Liverpool; refined alkali, 1⅝d., less 2½% Tyne; bleaching powder, £7. 10s. nett Tyne; saltcake, 36s. 6d.; borax, English refined, £29., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 6½d., less 5% any port; nitrate of soda, 8s. 3d. to 8s. 6d.; sulphate of ammonia, £9. 15s. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £15. less 5% Liverpool; paraffin scale (hard), 2$\frac{15}{16}$d., and soft 2$\frac{13}{16}$d. to 3d. per lb.; paraffin wax, 120°, semi-refined, 3⅝d. to 4d.; paraffin spirit (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales about 1d. lower); ditto (lubricating), 865°, £3. 5s. to £3. 15s., 885°, £4. 10s. to £6., and 890/895°, £5. to £7. Week's imports of raw sugar at Greenock were 26,398 bags.

## New Companies.

American Insulated Wire Co., Limited.—This company was registered on the 21st ult., with a capital of £75,000., in £5. shares, to acquire, develop, and turn to account certain letters patent, patent rights, etc., relating to the manufacture of wire, wire ropes, and cables for electric purposes, and to carry on the business of manufacturers of and dealers in wire, wire ropes and cables of all kinds, mechanical and electrical engineers, electricians, founders, machine makers, suppliers of electricity, and manufacturers of electrical apparatus. The subscribers are:—

| | Shares. |
|---|---|
| C. G. T. Neumann, Forster Square, Bradford | 1 |
| J. B. Atherton, Rainhill | 1 |
| Wm. M. Brigg, Hawkstone, Keighley | 1 |
| H. Neumann, 13, Claremont, Bradford | 1 |
| J. Atherton, Huyton | 1 |
| H. M. Brigg, Hawkstone, Keighley | 1 |
| F. J. Leslie, 15, Union Court, Liverpool, solicitor | 1 |

Millerain Syndicate, Limited.—This company was registered on the 27th ult., with a capital of £8,000., in £1. shares, to take over an option to purchase an invention and letters patent No. 9,711 of 1890, and to carry on the business o waterproofers of textile fabrics, manufacturers of textile fabrics, chemical manufacturers, dyers, etc. The subscribers are:—

| | Shares. |
|---|---|
| L. Clayton, Wellington Mills, Halifax, silk spinner | 1 |
| T. S. Scarborough, J.P., Savile Terrace, Halifax | 1 |
| J. Moodie, Savile Lodge, Halifax, banker | 1 |
| J. H. Murgatroyd, Savile Lawn, Halifax, silk spinner | 1 |
| J. Miller, sen., Cunliffe Villas, Manningham, Bradford, dyer | 1 |
| *J. Miller, jun., Cunliffe Villas, Manningham, dyer* | 1 |
| *R. Miller, Cunliffe Villas, Manningham,* Bradford, dyer | 1 |

S. G. Clements and Co., Limited.—This company was registered on the 23rd ult., with a capital of £10,000., in £10. shares, to acquire and carry on the business of wholesale druggists, manufacturing chemists, drysalters, etc., carried on by Messrs. S. G. Clements and Co., at 12, 13 and 14, Lewin's Mead, Bristol. The subscribers are:—

| | Shares. |
|---|---|
| J. W. Baker, 12, Lewin's Mead, Bristol, druggist | 1 |
| W. A. Lyddon, The Ferns, Yatton | 1 |
| J. W. Marks, Lulworth House, Keynsham, druggist | 1 |
| H. Masters, Bishopston, Gloucester, chemist | 1 |
| C. G. Preece, Keynsham, chemist | 1 |
| A. Slater, 24, Hampton Road, Bristol, druggist | 1 |
| J. Bicknell, Carlton Chambers, Bristol, accountant | 1 |

Thomas Houldsworth and Co., Limited.—This company was registered on the 26th ult., with a capital of £150,000., in £10. shares, to acquire, take over as a going concern, and carry on the business of cotton spinners, cloth manufacturers, bleachers, finishers, dyers, printers, etc., carried on at Manchester and Reddish by Messrs. Thomas Houldsworth and Co., and with a view thereto to enter into an agreement with Sir William H. Houldsworth, Bart., M.P., in the terms of a draft referred to in clause 3 of the articles. The subscribers are:—

| | Shares. |
|---|---|
| Sir W. H. Houldsworth, Coodham, Kilmarnock, N.B. | 1 |
| H. H. Houldsworth, Coodham, Kilmarnock, N.B. | 1 |
| G. Harrison, Newton Street Mills, Manchester, cotton spinner | 1 |
| J. Blake, Newton Street Mills, Manchester | 1 |
| J. Hainsworth, Reddish, near Stockport, mill manager | 1 |
| J. Higginson, Reddish, near Stockport, cotton spinner | 1 |
| J. Higginson, Junr., Reddish, near Stockport, engineer | 1 |

## The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

### APPLICATIONS FOR LETTERS PATENT.

**Utilising Residues from Zinc Smelting.** E. H. Cook and A. E. Petter. 12,131. July 18.
**Mordant Dyeing Colouring Matters.** J. Y. Johnson. 13,147. July 18.
**Utilising Waste Heat.** A. Meyer and H. Gehrke. 13,162. July 19.
**Economising Coal in Open Grates.** E. Taylor. 13,174. July 19.
**Improvements in Oil Motors.** C. D. Abel. 13,204. July 19.
**Improvements in the Manufacture of Sulphate of Ammonia.** W. Malster. 13,208. July 19.
**Enamelled Bricks.** H. H. Leigh. 13,220. July 19.
**Manufacture of Varnish and Apparatus Therefor.** H. Pfanne. 13,240. July 19.
**Manufacture of Antiseptics.** J. Y. Johnson. 13,297. July 20.
**Improvements in Dyes and Pigments, etc.** C. S. F. Mellor. 13,305. July 20.
**Ferric Chloride Preparation for Treating Sewage.** C. A. Burghardt. 13,315. July 21.
**Smoke Consuming Apparatus.** R. Greenhalgh. 13,321. July 21.
**Production of Fuel Gas.** J. M. Bailey. 13,339. July 21.
**Improvements in Smoke Preventing Apparatus.** E. Wardle and J. H. Evers. 13,359. July 21.
**Filters.** S. A. Johnson. 13,376. July 21.
**Generators for Hydrogen Gas.** W. Hawkins, T. Hawkins, H. Fuller, and W H. Fuller. 13,373. July 21.
**Artificial Camphor.** T. S. Lemon. 13,400. July 22.
**Portable Leclanche Batteries.** H. Nehmer. 13,405. July 22.
**Improved Bleaching Compound.** H. Y. Castner. 13,411. July 22.
**Separating Pulverised Gold Ores by Compressed Air.** G. Henoch and E. M. C. Exelmans. 13,413. July 22.
**Indelibly Marking Soap Cakes.** G. D. Macdougald and J. Sturrock. 13,417. July 22.
**Boiler Cleaning Composition.** T. Joyce. 13,466. July 23.
**Preventing Choked Ascension Pipes in the Manufacture of Coal Gas.** T. B. Jones. 13,470. July 23.
**Improvements in Water Motors.** F. H. Sohn. 13,471. July 23.
**Manufacture of Oxygen and Carbonic Acid and Apparatus Therefor.** S. Walker and S. S. Walker. 13,472. July 23.
**Production of Red Azo-Colouring Matters.** O. Imray. 13,475. July 23.
**Smoke Consuming Furnaces.** J. Sadler. 13,481. July 23.
**Production of Transparent Ice.** P. E. Hodgkin and The Pulsometer Eng. Co., Ltd. 13,488. July 23.

## Gazette Notices.

### PARTNERSHIPS DISSOLVED.

B. W. Kuhn and C. F. Schroeder, under the style of B. Kuhn and Schroeder, Manchester, drysalters.

J. W. Ellis, W. T Grahamsley, and J. L. Spoor, under the style of Hunter, Taylor, and Spoor, Greenhithe, cement manufacturers, as far as regards J. L. Spoor.

### Adjudications.

Cox, Emma Violet (trading as E. Cox), Junction-road, Holloway, late Holloway-road, N., late oil and colour warehouseman.

Hay, William Francis, Teviot-street, Bromley-by-Bow, oil and colourman.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending July 23rd.*

**Acetic Acid—**
Holland, 20 pkgs. A. & M. Zimmermann
" 84 Phillipps & Graves
" 200 Beresford & Co.

**Acetone—**
Holland, 21 pkgs. A. & M. Zimmermann

**Alum—**
Holland, 108 pkgs. Ohlenschlager Bros.

**Antimony—**
N. Zealand, 53 t. Vivian, Younger, & Co.
Sydney, 30 Lack, Son, & Co.

**Asbestos—**
Germany, £20 Phillipps & Graves
Canada, 800 W. Byford

**Barytes—**
Germany, 19 cks. P. Jantzen
Holland, 44 W. Harrison & Co.
Germany, 44 "
Holland, 22 W. Pope & Co.
Belgium, 50 bgs. H. A. Litchfield
" 17 J. L. Lyon & Co.
" 43 S. Ward & Co.
" 40 S. H. Willoughby

**Butyric Acid—**
Belgium, 7 pkgs. Phillipps & Graves

**Caoutchouc—**
France, 15 c. L. & I. D. Jt. Co.
E. Indies, 67 "
" 73 E. Barber & Co.
Germany, 35 Anderson, Weber, & Smith
Ibo, 65 L. & I. D. Jt. Co.
Madagascar, 365 "
Inhambane, 49 "
Zanzibar, 16 Forbes, Forbes & Co.
Germany, 5 T. H. Lee
" 35 Anderson, Weber, & Smith
France, 35 Flageollet & Co.
Portugal, 10 Major & Field
Germany, 13 L. & I. D. Jt. Co.
Madagascar, 297 Williams, Torrey, & Co., Ltd.
Rangoon, 105 R. G. Hall & Co.
" 422 L. & I. D. Jt. Co.
" 132 J. H. & G. Scovell
Lamu, 4 Major & Field

**Carbonic Acid Gas—**
Holland, 9 pkgs. Volcanic Æration Co.

**Caustic Potash—**
France, 110 c. Briscoe & Co.

**Caustic Soda—**
Belgium, 20 c. Beresford & Co.

**Chemicals** *(otherwise undescribed)*
Germany, 77 pkgs. T. H. Lee
" 63 A. & M. Zimmermann
" 3 Hernu, Peron, & Co.
France, 100 A. Hughes
Germany, 7 Phillipps & Graves
" 3 Domeier & Co.
Holland, 80 A. & M. Zimmermann
" £10 W. H. Miller & Co.

**Cream of Tartar—**
France, 5 pkgs. J. Puddy & Co.
Italy, 24 B. Jacob & Sons
Dunedin, 20 A. L. Elder & Co.
Holland, 53 Middleton & Co.
" 20 B. & F. Wf. Co., Ltd.
Italy, 10 Italo-Brit. S. N. Co.
France, 9 E. W. Carling & Co.
Cape, 4 Kuhner, Rudkin, & Co.

**Dyestuffs—**

**Anthracene**
Spain, 182 pkgs. Burt, Boulton, & Co.

**Argols**
Italy, 1,658 pkgs. B. Jacob & Sons
" 82 Thames S. T. & L. Co., Ltd.

**Cochineal**
Roumania, 6 pkgs. O. Bruckman & Co.
Canaries, 6 W. M. Smith & Sons

**Cutch**
Rangoon, 1,000 pkgs. Arracan Co.
" 602 Phillipps & Graves
" 830 A. Howden & Co.
" 138 J. H. & G. Scovell
" 456 Perkins & Homer

**Extracts**
Denmark, 55 pkgs. J. Forsey
France, 1 Mory & Co.
" 536 Prop. Chmbln.'s Wf.
" 30 Bailey & Leetham
Belgium, 125 L. J. Levinstein & Sons
France, 330 T. H. Lee

**Gambier**
Singapore, 503 pkgs. L. & I. D. Jt. Co.
" 651 Adamson, Gilfillan, & Co.
" 428 Beresford & Co.
Germany, 138 Butler's Wf., Ltd.

**Indigo**
E. Indies, 111 chts. Wallace Bros.
Holland, 2 bxs. Dipnall & Co.
E. Indies, 22 Frith, Sands, & Co.
" 25 L. & I. D. Jt. Co.
" 20 Wrightson & Son
Germany, 30 W. H. Cole & Co.
Holland, 9 L. & I. D. Jt. Co.

**Madder**
Holland, 6 pkgs. Williams, Torrey, & Co., Ltd.
France, 3 Skilbeck Bros

**Sumac**
Italy, 100 pkgs. H. Johnson & Sons
" 250 Brown & Elmslie
" 100 J. Knill & Co.
" 1,250 J. Kitchin, Ltd.
" 75 Italo-Brit. S. N. Co.
" 150 Sollas & Sons
" 300 W. Shelcott
" 105 Beresford & Co.
" 100 W. Barter & Co.

**Tanners' Bark**
Adelaide, 104 t. Beresford & Co.
Belgium, 12 Leach & Co.
Durban, 23 A. & W. Nesbitt
Melbourne, 116 Flack, Chandler, & Co.
Cape, 27 Brown & Elmslie
Adelaide, 45 Devitt & Hett

**Turmeric**
E. Indies, 12 pkgs. L. & I. D. Jt. Co.
" 401 Clarke & Smith

**Dyestuffs** *(otherwise undescribed)*
E. Indies, 5 pkgs. Dawson Bros.

**Farina—**
Holland, 226 pkgs. C. F. Webster & Co.

**French Chalk—**
Austria, £50 W. Harrison & Co.

**Glucose—**
U. States, 20 pkgs. 110 c. T. M. Duche & Sons
Holland, 60 60 c. C. A. Farmer
" 200 200 W. Pope & Co.
France, 300 300 L. Norman & Co.
U. States, 2,575 3,203 R. G. Hall & Co.
" 250 250 Baxter & Hoare
" 150 825 Prop. Chmbln.'s Wharfe
" 40 224 J. Keiller & Son
" 50 300 W. Isted
" 75 450 Soundy & Sons
" 100 600 J. Knill & Co
" 175 1,000 Pillow, Jones & Co.
" 1,075 1,870 L. Sutro & Co.

**Glycerine—**
Germany, £42 Ellis, Kislingbury, & Co.
Lyttleton, 70 Beresford & Co.
Holland, 115 J. Owen
" 400 Spies Bros. & Co.
France, 115 H. Hill & Sons
Melbourne, 385 Connell & Co.

**Guano—**
E. Indies, 3 t. L. & I. D. Jt. Co.

**Lead Acetate—**
Germany, 18 pkgs. F. Boehm

**Manganese—**
Germany, 10 t. H. Johnson & Sons

**Manure—**
Germany, 20 t. B. & F. Wf. Co., Ltd.
" 10 T. H. Lee

**Mica—**
E. Indies, £148 W. M. Smith & Sons
Adelaide, 100 W. Klein & Sons

**Ochre—**
France, 94 cks. W. Harrison & Co.
" 7 O'Hara & Hoar
" 17 brls. L. & I. D. Jt. Co.

**Painters' Colours—**
France, 24 pkgs. G. J. Thompson
U. States, 5 Anglo-American Oil Co., Ld.
Germany, 13 L. & I. D. Jt. Co.
U. States, 1 N. S. S. Co., Ld.
Belgium, 4 brls. J. L. Lyon & Co.
Holland, 140 pkgs. G. Rahn & Co.
" 12 W. Harrison & Co.
" 6 Phillipps & Graves
France, 3 Flageollet & Co.
U. States, 4 Pickford & Co.
Germany, 15 Craven & Co.
Belgium, 8 T. Palmer
Germany, 7 Phillipps & Graves
" 13 Hemingway & Co.
" 8 T. H. Lee
" 20 Burrell & Co.
France, 1 Hernu, Peron, & Co.
Holland, 10 W. H. Carey & Sons
" 2 cks. Wilkinson, Heywood & Co.
U. States, 30 brls. L. & I. D. Jt. Co.

**Paraffin Wax—**
U. States, 200 cs. 1,431 brls. H. Hill & Sons
E. Indies, 50 "
Germany, 56 Grosscurth & Luboldt
U. States, 200 J. H. Usmar & Co.
" 200 brls. O. Ogleby & Co.

**Phosphate Rock—**
Belgium, 143 t. Odams Chemical Manure Co.

**Pitch—**
N. Russia, 330 cks. Linck, Moeller & Co.

**Plumbago—**
Ceylon, 90 brls. Prop. Sun Whf.
Germany, 4 cks. P. Hecker & Co.
Ceylon, 77 brls. Doulton & Co.

**Potassium Bicarbonate—**
Holland, 10 pkgs. A. & M. Zimmermann

**Potassium Carbonate—**
France, 11 pkgs. Spies Bros. & Co.
" 9 Beresford & Co.

**Pyrites—**
Spain, 900 t. T. S. Whitehead & Co.

**Rosin—**
U. States, 500 brls. Pillow, Jones, & Co.
" 286 Moore & Hole
" 250 C. Tennant, Sons & Co.
" 500 G Nutter & Co.
" 4,750 F. & S. Chiesman & Co.

**Salt—**
Germany, 100 pkgs. B. A. Smith

**Saltpetre—**
Germany, 108 bgs. P. Hecker & Co.
" 3 cks. Craven & Co.
" 62 J. Hall & Son

**Soda—**
Holland, 425 c. R. W. Greeff & Co.
" 140 H. Wallace & Co.

**Soda Crystals—**
Belgium, 260 c. Vokins & Co., Ld

**Sodium Acetate—**
France, 14 pkgs. McDougall & Bouthron

**Sodium Hyposulphite—**
Holland, 92 pkgs. R. W. Greeff & Co.

**Sodium Nitrate—**
Germany, 1 pkg. C. Faust & Co

**Stearine—**
France, 140 bgs. Beresford & Co.
" 6 cks. Mory & Co.
Melbourne, 144 A. Lambert
U. States, 20 Chesebrough Mfg. Co.

**Sulphur—**
France, 1 t. E. W. Carling & Co.
Italy, 11½ F. Smith
" 10 T. T. Creed
" 20 C. Vincent
" 100 W. C. Bacon & Co., Ld.
" 150 G. Boor & Co.
" 20 J. Puddy & Co.
" 16 A. Gibb & Sons
" 38 Pigou, Wilks & Co.
" 5 Northcott & Sons
" 10 A. Hughes
" 115 J. Kitchin, Ld.

**Talc—**
Italy, £110 Davies, Turner & Co.
" 48 C. F. Gerhardt

**Tallow—**
N. Zealand, 25 cks. N. Z. L. & M. A. Co.
" 18 Hicks, Nash, & Co.
" 11 Flack, Chandler & Co.
Adelaide, 54 "
France, 30 C. B. Leighton
Melbourne, 19 Baxter & Hoar
" 14 Dalgety & Co.
Adelaide, 56 Flack, Chandler & Co.
Sydney, 174 Coml. Banking Co. of Sydney
" 16 Aust. Meat Co.
" 77 Goad, Rigg, & Co.
" 104 Horne & Son
" 100 J. Greig
Germany, 57 C. B. Leighton
Holland, 9 J. Barber & Co.
N. Zealand, 1 Culverwell, Brooks, & Co.
Belgium, 25 bgs. C. S. Lovell

**Tallow and Stearine—**
U. States, 200 cks. L. P. D. Co.

**Tar—**
N. Russia, 938 brls. Linck, Moeller, & Co.
Sweden, 20 Beronius, King, & Co.
Germany, 50 Linck, Moeller, & Co.

**Tartar—**
Italy, 5 pkgs. Howards & Sons

**Tartaric Acid—**
Holland, 20 pkgs. B. & F. Wf. Co., Ltd.
" 31 Middleton & Co.

**Turpentine—**
Savannah, 2,254 brls. Nickoll & Knight
Wellington, 50 Prod. Brokers Co.

**Ultramarine—**
Germany, 3 pkgs. H. Brooks & Co.
" 40 cs. G. Steinhoff
Holland, 14 3 cks. Haeffner, Hilpert, & Co.

**Varnish—**
U. States, 24 pkgs. Williams, Torrey, & Co.

**White Lead—**
Holland, 99 cks. Phillipps & Graves
" 48 T. & W. Farmiloe
" 9 A. & M. Zimmermann
Belgium, 10 kgs. J. L. Lyon & Co.
Germany, 57 cks. Randall Bros.
" 19 Burrell & Co.
France, 45 W. Harrison & Co.
Germany, 21 Petri Bros.
" 38 Magee, Taylor, & Co.
Holland, 20 brls. Societe Maritime Belge
Belgium, 19 cks. Leach & Co.
" 40 T. & W. Farmiloe
" 19 Blundell. Spence, & Co.

**Zinc Oxide—**
Holland, 100 brls. M. Ashby, Ltd.
Germany, 20 cks. J. Matton

## LIVERPOOL.

*Week ending July 21st.*

**Acetic Acid—**
Rotterdam, 10 botls.

**Alum—**
Rotterdam, 17 cks.

**Ammonium Acetate—**
Rotterdam, 2 brls.

**Ammonium Sulphate—**
Marseilles, 75 brls.

**Antimony—**
In transit, 66 cks.

**Barytes—**
Antwerp, 23 cks.

**Borate of L'me—**
Iquique, 506 bgs.

**Chemicals and Borax—**
Havre, 2 cs. Cunard S. S. Co., Ld

**Colours—**
Rotterdam, 2 cs. 32 cks.

**Cream of Tartar—**
Barcelona, 15 cks.
Tarragona, 5
Rotterdam, 4
Marseilles, 10 brls.

**Dried Blood—**
Buenos Ayres, 1,679 bgs.

**Dyestuffs—**
**Algarobilla**
Coquimbo, 152 sks Johns & Co.
Corrizal Bajo, 805 J. R. Templemann & Co.
**Extracts**
New York, 25 bxs.
Fiume, 600 brls. E. T. Gutmann
Bordeaux, 304 cks.
Antwerp, 24 cs. J. T. Fletcher & Co.
**Gambier**
Singapore, 5,451 bls.
**Indigo**
In transit, 1 cht.
**Myrabolams**
Bombay, 411 bgs. Ritchie, Stewart & Co.
" 1,697
**Orchella**
Guayaquil, 4 pkgs. G. S. Bruce
**Saffron**
Valencia, 2 cs.
**Sumac**
Palermo, 300 bgs. 20 bls.
**Valonia**
Marathouisa, 180 t. Papayanni & Jeremias
Marseilles, 50 bgs.

**Glucose—**
New York, 500 brls.

**Glycerine—**
Rotterdam, 7 cbys. 3 cs.

**Iodine—**
Valparaiso, 34 brls. Vorwerk, Gehr & Co.
" 27

**Manganese—**
Fiume, 10 t. Bolling & Lowes
Coquimbo. in bulk.
Yokohama, 161½ MacQueen Bros.
Kobe, 172 "
" 10¼
Gothenburg, 19 "
Corrizal Bajo, in bulk.

**Mineral White—**
Trieste, 100 bgs. V. Pazze

**Paint—**
New York, 1,386 slbs.

**Phosphate—**
Montreal, 442 t.

**Potash—**
Montreal, 9 brls. Makin & Bancroft
Dunkirk, 14 dms.

**Pyrites—**
Huelva, 4,800 t. Matheson & Co.
" 1,685 Tennants & Co.

**Rosin—**
Arica, 5 cs. F. A. Witt
New York, 282 brls.
" 2,507 R. Crooks & Co.
Brunswick, 500

**Saltpetre—**
Hamburg, 50 brls.
Kurrachee, 125 bgs.

**Soap—**
New York, 3 cs. Burroughs, Wellcome & Co.
" 200 brls. Hunt & Co.
" 180 bxs. Simmonds, Hunt & Co.
Philadelphia, 900 50 crts.
Bari, 153 cs.
Marseilles, 450

**Soapstone—**
Genoa, 100 bgs.

**Sodium Nitrate—**
Caleta Buena, 8,634 bgs.

**Sodium Silicate—**
Philadelphia, 2 brls.

**Stearine—**
New York, 20 hds.
Boston, 70 brls.
Rotterdam, 10 cs.

**Sulphur—**
Bari, 50 brls. Stoddard, Lovering & Co.

**Tallow—**
Boston, 223 hds.
Buenos Ayres, 540 551 cks.
New York, 50 Co-op W'sale Society, Ld.
" 120 tcs.
Philadelphia, 224
In transit, 10 cs. 10 brls.
Boston, 75 brls. J. Mackee & Co.

**Tartar—**
Bordeaux, 13 cks.

**Tartaric Acid—**
Rotterdam, 19 cks. 10 kgs.

**Turpentine—**
Brunswick, 1,550 cks.

**Ultramarine—**
Rotterdam, 17 cs. 9 cks.

**Varnish—**
Havre, 1 cs. Cunard S. S. Co., Ld.

**Verdigris—**
Bordeaux, 2 cks.

**White Lead—**
Antwerp, 7 cks.
Rotterdam, 14
Ghent, 7

**Zinc Ashes—**
Marseilles, 13 cks.

**Zinc Oxide—**
Rottercam, 25 cks.

**Zinc White—**
Rotterdam, 60 cks. O. & H. Marcus

## HULL.

*Week ending July 23rd.*

**Acetic Acid—**
Hamburg, 20 blns. M. S. & L. Ry. Co.

**Acid—**
Hamburg, 12 cks.

**Barytes—**
Antwerp, 100 bgs. Aire & Calder N. Co.
Bremen, 46 cks. H. F. Pudsey
" 103 bgs.

**Caoutchouc—**
Hamburg, 11 cs. C. M. Lofthouse & Co.

**Chemicals** (*otherwise undescribed*)
Stettin, 1 ck. Wilson, Sons, & Co., Ld.
Bremen, 1 botl. 2 cs. Veltmann & Co.
Hamburg, 9 pks. Wilson, Sons. & Co., Ld.
Dunkirk, 29 cks. "
Antwerp, 66 dms. "

**Colours—**
Rotterdam, 8 pks. 11 cks. G. Lawson & Sons
Stettin, 50 cks.
Ghent, 23 Wilson, Sons, & Co, Ld.
" 12
Bremen, 2 Veltmann & Co.
Danzig, 10 pks. Wilson, Sons, & Co., Ld.
Flushing, 139 cks. 8 cs. 119 pks. Zeeland S. S. Co.
Riga, 70 cks. Wilson, Sons, & Co., Ld.
Rotterdam, 17 cs. 38 brls. Hutchinson & Son
" 8 cks. A. Sanderson & Son
Antwerp, 31

**Cryolite—**
Copenhagen, 6 cks. Wilson, Sons, & Co., Ld.

**Dyestuffs—**
**Alizarine**
Rotterdam, 5 cks. W. & C. L. Ringrose
" 75 brls. 1 cs. Hutchinson & Son
**Extracts**
Bremen, 1 cs. C. M. Lofthouse & Co.
**Valonia**
Smyrna, 948 bgs. 270 t.

**Farina—**
St. Petersburg, 431 bgs. Wilson, Sons, & Co., Ld.
Ghent, 176 cs. "
Danzig, 206 "

**Glucose—**
New York, 200 brls.
" 75 Wilson, Sons, & Co., Ld.

**Glycerine—**
Rotterdam, 11 t. G. Lawson & Sons
" 2 dms.

**Lead Acetate—**
Hamburg, 16 brls. Sissons Bros. & Co.

**Manganese—**
Rotterdam, 70 cks. Furley & Co.

**Paint—**
New York, 20 cs. Wilson, Sons, & Co., Ld.

**Phosphate Rock—**
Beaufort, S. C., 1,500 t.

**Pitch—**
Amsterdam, 13 cks. H. F. Pudsey

**Potash—**
Rotterdam, 20 cks. G. Lawson & Sons

**Pyrites—**
Stavanger, 2 brls. Wilson, Sons, & Co., Ld.

**Rosin—**
Stettin, 10 bgs.
New York, 100 brls. Wilson, Sons, & Co., Ld.

**Soap—**
New York, 100 bkts. Wilson, Sons, & Co., Ld.
Copenhagen, 1 cs. "

**Soda—**
Rotterdam, 18 cks. G. Lawson & Sons

**Stearine Pitch—**
Dunkirk, 115 cks. Wilson, Sons, & Co., Ld.

**Sulphate—**
Antwerp, 45 cks.

**Tallow—**
New York, 150 hds. 216 pks. Wilson, Sons, & Co., Ld.

**Tallow Oil—**
Boston, 102 tcs. Wilson, Sons, & Co., Ld.

**Tar—**
Drontheim, 72 brls. Wilson, Sons, & Co., Ld.
Dunkirk, 4 cs. "

**Tartaric Acid—**
Rotterdam, 10 cks. G. Lawson & Sons

**Ultramarine—**
Bremen, 8 cks.
Rotterdam, 4 Todd & Co.

**White Lead—**
Antwerp, 24 cks. Bailey, Inglis

**Zinc Sulphate—**
Bremen, 19 cks.

## GLASGOW.

*Week ending July 28th.*

**Acetate of Lime—**
New York, 245 bgs

**Alkali—**
Antwerp, 12 jars.

**Barytes—**
Rotterdam, 20 cks. J. Rankine & Co.
" 45

**Barytes Sulphate—**
Antwerp, 44 cks.

**Chemicals** (*otherwise undescribed*)
Hamburg, 4 cs.

**Cobalt—**
Noumea, 391 t. 6 c.

**Colours—**
Rotterdam, 2 bxs. 13 bls.

**Cream of Tartar—**
Rotterdam, 11 cks. J. Rankine & Co.

**Dyestuffs—**
**Alizarine**
Rotterdam, 24 cks.
**Extracts**
New York, 50 bxs.
Antwerp, 12 cks.
**Indigo**
Amsterdam, 11 cas.
**Sumac**
New York, 30 bgs.

**Farina—**
Rotterdam, 24 bgs.

**Glucose—**
New York, 748 brls.

**Lead Acetate—**
Antwerp, 6 cks.

**Potash—**
Montreal, 10 brls. J. —

**Potassium Prussiate—**
Hamburg, 40 cks.

**Rosin—**
New York, 2,722 brls.

**Saltpetre—**
Calcutta, 1 bx.

**Stearine—**
New York, 30 hds.

**Sulphur—**
Huelva, 960 t. Seville Sulphur & Copper Co.

**Tallow—**
New York, 50 hds.

**Tartaric Acid—**
Rotterdam, 30 cks. J. Rankine & Co.

**Tin Oxide—**
Rotterdam, 2 cks. J. Rankine & Co.

**Varnish—**
New York, 14 cas.

**Waste Salt—**
Hamburg, 268 cks.

**White Lead—**
Rotterdam, 32 cks.

**Zinc White—**
Rotterdam, 150 cks. J. Rankine & Co.

## TYNE.

*Week ending July 23rd.*

**Alum Earth—**
Hamburg, 18 cks. Tyne S. S.

**Colours—**
Rotterdam, 6 cs. 1 ck. Tyne S. S. Co.
**Phosphate Rock—**
Coosaw, 2,746 t.
**Plumbago—**
Hamburg, 17 cks. Tyne S. S. Co.
**Pyrites—**
Huelva, 1,773 t. Scott Bros.
**Salt—**
Hamburg, 600 t. Clephens & Wiencke
**Sulphur—**
Pozzuoli, 1,200 t. Mason & Barry
Huelva, 2,923 Scott Bros.
**Superphosphate—**
Antwerp, 200 bgs. Tyne S. S. Co.
**Tartaric Acid—**
Rotterdam, 4 cks. Tyne S. S. Co.
**Ultramarine—**
Hamburg, 4 cks. Tyne S. S. Co.

## GOOLE.

*Week ending July 6th.*

**Alum—**
Rotterdam, 122 cks.
**Antimony—**
Boulogne, 1 cs.
**Caoutchouc—**
Boulogne, 5 cs.
**Dyestuffs** (*otherwise undescribed*)
Boulogne, 46 cs. 23 cks. 17 pkgs.
**Indigo—**
Rotterdam, 18 chts.
**Phosphate—**
Ghent, 817 bgs.
**Potash—**
Dunkirk, 70 dms. 7 cks.
**Pyrites—**
Huelva, 1,401 t.
**Saltpetre—**
Rotterdam, 100 bgs.
**Waste Salt—**
Hamburg, 33 t. 585 cks.

## GRIMSBY.

*Week ending July 11th.*

**Caoutchouc—**
Hamburg, 19 pkgs.
Antwerp, 1 ck.
**Chemicals** (*otherwise undescribed*)
Hamburg, 33 pkgs.
**Dyestuffs** (*otherwise undescribed*)
Dieppe, 25 pkgs.
**Zinc Ashes—**
Antwerp, 18 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending July 27th.*

**Acetic Acid—**
Brisbane, 5 cs. £10
**Alum—**
Vancouver, 6 cks. £25
Mazagan, 3 t. 15
**Alum Cake—**
Calcutta, 35 t. 3 c. £123
**Ammonium Carbonate—**
Sydney, 2 cks. £19
**Ammonium Chloride—**
Constantinople, 2 t. 10 c. £82
Larache, 9 15
Sydney, 7 4 165
**Ammonium Sulphate—**
Cologne, 48 t. £480
Hamburg, 92 16 c. 970
Philadelphia, 7 2 105
Ghent, 20 200
Barbadoes, 10 3 108
**Amorphous Phosphorus—**
Hiogo, 13 c. £147
Hong Kong, 2 cs. 27
**Arsenic—**
St. Petersburg, 10 t. £135
**Borax—**
Hamburg, 8 cks. £65
Melbourne, 7 t. 350
**Carbolic Acid—**
Melbourne, 2 t. £30
Treport, 79 cks. 84
**Caustic Soda—**
Algoa Bay, 4 c. £9
Cape Town, 11 18
Dunedin, 10 110
Natal, 1 t. 10 49
**Chemicals** (*otherwise undescribed*)
Vancouver, 3 cks. £11
Algoa Bay, 8 cs. 2 57
Calcutta, 5 pkgs. 13
Sydney, 20 kgs. 15 c. 110
Natal, 19 34
New York, 6 t. 4 70
Ghent, 1 cs. 9
Melbourne, 25 pkgs. 77
Capetown, 12 3 12 107
Mauritius, 12 73
**Chloride of Lime—**
Rockhampton, 36 t. 18 c. £289
Townsville, 5 2 40
**Citric Acid—**
Hamburg, 2 t. 5 c. £361
Gibraltar, 6 41
Sydney, 10 kgs. 77
St. Petersburg, 10 80
Libau, 2 18
Calcutta, 1 13
Santos, 7 53
**Coal Products—**
**Aniline**
New York, 15 pkgs. £370
**Anthracene**
Cologne, 214 cks. £49
Dusseldorf, 276 1,828
**Benzol**
Rotterdam, 40 cks. 6 drs. £439
Calais, 40 329
**Coal Tar Dyes**
Boston, 1 cs. £14
**Creosote**
Calais, 26 cks. £60
Dieppe, 23,000 glns. 120
**Creosote Oil**
Treport, 75 brls. £139
**Naphtha**
Calais, 25 runs
40 pkgs. £230
**Naphthalene**
Treport, 50 bgs. £42
**Nitro-Naphthalene**
Cologne, 1 ck. £14
**Paraffin Wax**
Hobart, 62 cs. £203
Melbourne, 30 bgs. 95
**Pitch**
Boston, 551 pkgs. £277
Gothenburg, 50 cks. 28
Antwerp, 150 t. 225
New York, 1,199 593
Karachi, 40 19
Dunedin, 10 10
Havre, 110 160
**Pyridine Bases**
Rotterdam, 12 cks. £105
**Tar**
Gothenburg, 80 cks. £56
Pt. Elizabeth, 14
Malmo, 100 brls. 48
Karachi, 25 15
Algoa Bay, 200 drs. 12
New York, 50 25
**Tar Oil**
St. Petersburg, 25 cks. £125
Calais, 50 brls. 50
Algoa Bay, 10 t. 4 c 36
**Toluol**
Rotterdam, 25 cks. 14 drs. £224
Calais, 50 runs. 6,089
**Coal Products** (*otherwise undes.*)
Hong Kong, 20 brls. £20
**Cream of Tartar—**
Melbourne, 2 t. 5 c. £198
Sydney, 1 5 111
**Disinfectants—**
Colombo, 21 cks. £33
Penang, 100 drs. 35
Calcutta, 3 11
Adelaide, 8 kgs. 13
Batoum, 28 pkgs. 30
Sydney, 28 cs. 125
Singapore, 37 100 50
**Flowers of Sulphur—**
Mossel Bay, 200 kgs. £118
**Glycerine—**
Hamburg, 1 t. 10 c. £66
Cologne, 10 3 147
**Hyposulphite of Lime—**
Philadelphia, 18 c. £330
**Manure—**
Rochefort, 700 t. £3,300
Hamburg, 119 18 c. 1,130
Rouen, 14 16 96
Martinique, 51 12 505
Genoa, 200 665
Riga, 561 4 1,664
Gothenburg, 141 6 481
Sydney, 3 13 90
Stolpemunde, 195 2 750
**Mirbane—**
New York, 52 pkgs. £200
**Mirbane Salts—**
New York, 6 cks £70
**Oxalic Acid—**
Treport, 5 t. 5 c. £150
St. Petersburg, 5 1 136
**Calcium Phosphide—**
Copenhagen, 2 cs. £100
**Phosphorus—**
Hiogo, 2 t. 5 c. £300
Algoa Bay, 2 22
**Potassium Cyanide—**
Singapore, 3 cs. £19
Yokohama, 10 c. 56
**Salicylic Acid—**
Otago, 1 c. £29
**Saltpetre—**
Corunna, 4 t. 15 c. £100
Vigo, 3 15 78
Melbourne, 2 10 54
Lisbon, 3 13 74
Gibraltar, 10 10
Santos, 8 18 200
**Sheep Dip—**
Wellington, 155 pkgs. £112
E. London, 140
Delagoa Bay, 50 drs. 11
Natal, 1 t. 5 c. 52
**Soda—**
Hamburg, 17 c. £5
Calcutta, 1 t. 1 4
**Soda Ash—**
Melbourne, 25 t. 2 c. £167
**Soda Crystals—**
Coronel, 1 t. 13 c. £6
**Soda Salts—**
Brussels, 2 cs. £35
**Sodium—**
New York, 3 t. 12 c. £499
**Sodium Acetate—**
Sydney, 1 t. 17 c. £68
**Sodium Bicarbonate—**
Batoum, 6 c. £3
Brisbane, 2 t. 5 12
Sydney, 5 16 52
**Sodium Nitrate—**
Sydney, 5 t. 4 c. £49
**Sulphur—**
Natal, 10 c. £11
**Sulphuric Acid—**
Algoa Bay, 5 t. 17 c. £50
**Superphosphate—**
Riga, 406 t. 14 c. £1,488
Libau, 448 13 1,344
**Tartaric Acid—**
Batoum, 1 cs. 3 c. 1 ck. £10
Fremantle, 2 11
Melbourne, 2 t. 203
St. Petersburg, 6 41
Bombay, 2 13
**Toluidine—**
New York, 15 drs. £300

## LIVERPOOL.

*Week ending July 27th.*

**Alkali—**
Buenos Ayres, 19 c. 1 q. £27
**Alum—**
Bombay, 9 t. 11 c. £51
Montreal, 5 1 27
Melbourne, 5 26
Calcutta, 19 19 99
Buenos Ayres, 6 19 35
Patras, 2 1 11
Seville, 8 10 46
Smyrna, 13 3 68
Talcahuano, 3 18
Alexandria, 23 5 138
Syra, 7 18 47
**Alum Cake—**
Calcutta, 10 t. 10 c. £31
Alexandria, 7 4 25
**Aluminous Cake—**
Calcutta, 25 t. 7 c. £90
Cochin, 3 19 13
**Ammonium Carbonate—**
Venice, 1 t. £26
Rangoon, 3 cs. 5 kgs. 14
Montreal, 1 t. 27
**Ammonium Chloride—**
Volo, 5 c. 1 q. £9
Syra, 9 15
New York, 4 t. 19 122
Trieste, 1 2 1 37
**Ammonium Sulphate—**
Antigua, 20 t. 7 c. 2 q. £263
Barcelona, 10 100
Montreal, 5 3 53
Valencia, 51 9 634
Barbadoes, 11 17 3 126
New York, 278 11 2,812
Las Palmas, 45 464
**Antimony—**
Montreal, 4 c. £11
**Bleaching Powder—**
Boston, 775 cks.
Oporto, 18
Philadelphia, 30 cs.
Piræus, 10 cks.
Rouen, 15
Venice, 23
Baltimore, 482
Bombay, 8
Odessa, 20
**Boracic Acid—**
Havre, 5 t. 1 c. 2 q. £201
**Borate of Manganese—**
New York, 4 c. £12
**Borax—**
Antwerp, 1 t. £30
Mayaquez, 7 c. 10
Halifax, 1 28
Ghent, 10 15
Alexandria, 4 cks. 60
Nantes, 1 2 30
New York, 60 drs. 35
Monte Video, 1 ck.
Rotterdam, 14 cks.
Sydney, 20 kgs.
Talcahuano, 5 cs.
Yokohama,
**Borax Crystals—**
Valparaiso, 10 kgs. 13 brls. £57
**Calcium Chloride—**
B. Ayres, 10 t. 1 c. £23
Palermo, 4 4 1 q. 11
**Carbolic Acid—**
New York, 3 t. 2 c. 2 q. £95
Rouen, 2 84

**Caustic Potash—**
San Francisco, 19 c. £23

**Caustic Soda—**
Carupano, 7 dms.
Fiume, 90
Gefle, 5 brls.
Hamburg, 10 20 kgs.
Hong Kong, 11
Melbourne, 36
Monte Video, 50
New York, 400
Philadelphia, 100 25 cks.
Port Natal, 30 bxs.
Rotterdam, 28
Rouen, 69
St. John's, Nfld., 6 pkgs.
Sydney, 30 3
Valencia, 60
Valparaiso, 10
Venice, 6
Adelaide, 36
Antwerp, 3
Baltimore, 135 brls.
Barcelona, 100
Boston, 50
Cadiz, 16
Ceara, 30
E. London, 4 cs.
Halifax, 10
Ibrail, 10
Madras, 4
Montreal, 120
St. Petersburg, 200 kgs.
Santander, 30
Sydney, 103
Talcahuano, 40 10
Tampico, 75

**Chemicals** *(otherwise undescribed)*
Antwerp, 8 c. £13
Axim, 1 ck. 9
Bilbao, 6 10
Larnaca, 6 9
Piræus, 10 16
Syra, 5 8
Venice, 6 9

**Citric Acid—**
Kurrachee, 1 t. 3 c. 1 q. £8

**Citro-Chloric Acid—**
Alexandria, 3 c. 2 q. £7

**Colours—**
Constantinople, 10 cs.
Mexico City, 2
New York, 1 5 cks.

**Copperas—**
Beyrout, 3 t. 9 c. £7
Rio de Janeiro, 2 16 5
Alexandria, 2 16 5
Syra, 3 17 8

**Copper Sulphate—**
M. Video, 2 t. 9 c. £37
Genoa, 3 19 60
Valparaiso, 10 8
Ancona, 3 2 3 q. 46
Odessa, 41 1 4 593
Venice, 2 12 39
Palermo, 5 75
Barcelona, 30 16 420
Bari, 5 15 85
Rotterdam, 3 2 43
Leghorn, 6 10 1 79
Naples, 1 19 3 29

**Disinfectants—**
Kurrachee, 1 t. £11
Bombay, 1 5 c. 50
Rio de Janeiro, 125 galls. 12

**Gypsum—**
New York, 36 t. 17 c. £136

**Iron Chloride—**
Bordeaux, 9 t. 14 c. £38

**Lead Acetate—**
Bombay, 5 c. £8

**Lime—**
Port Natal, 15 t. £14

**Manganese—**
Hong Kong, 1 t. £8

**Magnesia—**
Alexandria, 15 pkgs.
New York, 3 cs.

**Magnesium Chloride—**
Leghorn, 5 dms.

**Magnesium Sulphate**
Bombay, 51 cks.

**Manure—**
Las Palmas, 2 t. £21
Valencia, 50 150

**Metallic Sodium—**
Rotterdam, 1 t. 19 c. £443

**Muriate of Lime—**
Bombay, 1 t. 7 c. £14

**Ochre—**
Bahia, 10 brls.
Barranguilla, 30 kgs.

**Oxalic Acid—**
Genoa, 4 t. 17 c. 3 q. £145

**Paint—**
Amsterdam, 6 kgs. 4 dms.
B. Ayres, 10 cs. 12 cks. 30 41 brls.
Colombo, 8
Colon, 12 20
Guayaquil, 40
Las Palmas, 50
Mayaquez, 7
New York. 200
Port Elizabeth, 5
Principe, 3 cans.
St. Domingo, 16 20
Sierra Leone, 3
Genoa, 8 cs. 4 dms.
Gibraltar, 10
Lanzarote, 36 3
Lisbon, 2
Old Calabar, 6
Para, 16 7 4
Petit Goave, 3 8
Ponce, 3
San Juan, 2
Seville, 1 cs.
Sierra Leone, 3
Trieste, 8 120

**Painters' Colours—**
Akassa, 110 kgs
Antofagasta, 26 cs. 25 dms.
Baltimore, 253
Calcutta, 210
Callao, 94
Copenhagen, 8 brls.
Gibraltar, 20
Hiogo, 5 cks.
Hong Kong, 420 7 tcs.
Ilo, 30 bxs. 20 dms.
La Libertad, 24 cs.
Leghorn, 3 9
Lisbon, 6 brls.
Malta, 1 bx.
Messina, 10
New Orleans, 182 30
New York, 50
Piræus, 1 cs.
Port Natal, 100
Santiago, 1 20 20
Stockholm, 1 bx.
Sydney, 6 9 60 dms.
Talcahuano, 60 brls.
Accra, 2 cs.
Ceara, 25 10
Cienfuegos, 2
Hamburg, 8 3 1 dm.
Hayti, 50
Ibrail, 9 tcs.
Matadi, 2 dms.
M. Video, 35 12 brls.
Naples, 2
St. John's, Nfld., 58 123 20
St. Thomas, 7
San Sebastian, 1 cs.
Valparaiso, 38

**Phosphorus—**
Santander, 1 c. £11

**Pitch—**
Callao, 10 brls.
Carril, 100
Catania, 25
Musculla, 10

**Potash Crystals—**
New Orleans, 1 t. 2 c. £32

**Potassium Bichromate—**
Galatz, 5 t. 1 c. 1 q. £166

**Potassium Chlorate—**
New York, 38 t. £1,934
Bari, 2 5 c. 117
Ancona, 1 10 90
B. Ayres, 5 228
Sydney, 10 456
Naples, 9 25
Rotterdam, 3 8 179
St. Petersburg, 10 570
Odessa, 3 8
Montreal, 8 10
Genoa, 7 11 374
Istad, 1 50
Hiogo, 11 532

**Potassium Prussiate—**
Salonica, 2 c. £10
Rio de Janeiro, 10 48

**Potassium Silicate—**
Valencia, 8 t. 11 c. 1 q. £48

**Potassium Stannate—**
Bombay, 16 c. 1 q. 66

**Salt—**
Algoa Bay, 5 t.
Amsterdam, 189
Bahia, 9
Barbadoes, 50
Batanga, 12
Bonny, 10
Boston, 720
Brass, 510
Buenos Ayres, 14 2 c.
Buguma, 20
Calcutta, 9,181
Cameroon, 73
Coquimbo, 75
E. London, 17 18
Eloby, 9
Jersey, 65
Kingston, 30
Loango, 33 8
Melbourne, 139
Monte Video, 5 12
Montreal, 734 12
Mossel Bay, 40 500 sks.
New York, 784 60 bgs.
Old Calabar, 55 13
Philadelphia, 65
Rotterdam, 123
San Francisco, 37 13
Sierra Leone, 100
Warri, 34 8
Antwerp, 200
Arecibo, 20 cs.
Baltimore, 350
Benin, 15
C. C. Castle, 6
Capetown, 41 13
Chicago, 130
Christiania, 290 cs.
Opobo, 25
Rangoon, 4,338
Richibucto, 210
St. John's, N.B., 440½
Sinoe, 15
Tampico, 1
Victoria, 10 4

**Salt Cake—**
Bombay, 2 t. £6
Philadelphia, 150 4 c. 372
Baltimore, 313 14 741

**Saltpetre—**
Ceara, 5 t. 5 c. £112
Pernambuco, 2 17 65
Rio de Janeiro, 4 6

**Sheep Dip—**
Capetown, 2 t. 18. 3 q. £101
B. Ayres, 4 10 500

**Soap—**
Alexandria, 3 cs.
Antwerp, 400
Batavia, 2 bxs. 4
Benin, 1
Bombay, 15 cks. 230 kgs. 5 11 tcs. 112 dms.
Buenos Ayres, 2
Calcutta, 3 bxs. 4
Callao, 1
C. C. Castle, 2
Capetown, 336 2
Colon, 140
Constantinople, 1
Curacao, 25
E. London, 100 25
Genoa, 25
Karachi, 913
Matadi, 2
New York, 30 tcs.
Old Calabar, 20
Piræus, 20
Port Elizabeth, 5
Rouen, 25
Syra, 80
Valparaiso, 27
Accra, 25
Barbadoes, 200 1
Buenaventura, 100
Catacola, 80
Gibraltar, 80
Kingston, 130
Lanzarote, 57
Las Palmas, 440
Lucea, 300
Madras, 2
Montego Bay, 150
Montreal, 1
Port Natal, 570
Santos, 1
Savanilla, 2
Savannah la Mar, 200
Shanghai, 934
Toronto, 500
Trieste, 2

**Soda—**
Antwerp, 12 dms. 10 kgs.
E. London, 9 bxs.
Newcastle, 40 brls.
Bombay, 74

**Soda Ash—**
Bahia, 15 brls.
Baltimore, 348 cks. 1.000 bgs.
Boston, 177 3,280
Buenos Ayres, 120 750 brls.
Hamilton, 200
Maranham, 20
Melbourne, 53
Monte Video, 75 50
Montreal, 326 200
Napanee, 12
New York, 323 2,225
Oporto, 5
San Francisco, 261
,, Sebastian,
Smyrna, 40
Varna, 60
Cadiz,
Calcutta, 70
Ceara,
Constantinople,
Genoa, 1
Hamburg,
Leghorn, 10
Lisbon, 10
New Orleans,
Philadelphia, 383 2.000
Piræus, 20
Porto Alegre, 75
Rio Grande, 25
,, de Janeiro, 60
Santander, 21
Toronto, 14
Valparaiso, 10

**Soda Crystals—**
Baltimore,
Bombay,
Boston,
Hamburg, 1 bg.
Kingston.
London, Ont.,
Melbourne,
Montreal,
New York,
Philadelphia,
Smyrna,
Sydney, 267 kgs.
Barbadoes,
Buenos Ayres,
Malta,
Port Natal, 15
Rio Grande. 10 cks.
St. John's, Nfld., 85
Toronto, 75

**Sodium Arseniate—**
New York, 10 t.

**Sodium Biborate—**
Malaga, 3 t. 5 c. 2 q.
New York, 10
Montreal, 1 2 2
Hamburg, 2 7 1

**Sodium Bicarbonate—**
Barbadoes, 4 cks.
Bordeaux, 100 kgs.
Calcutta, 60
Cape Town, 25
Copenhagen, 145 4
Genoa, 15 brl
Hamilton, 100
Marseilles, 39 3
Melbourne, 584
Montreal, 125 12
Nantes, 10
Rotterdam, 38
Rouen, 50
Salonica, 20
San Francisco, 30
San Jose, 40
Valparaiso, 310
Beyrout, 20
Hamburg, 100 20
Havre, 34
New Orleans, 6 cs.
St. John's, N.F., 40
Smyrna, 20
Tampico, 20

**Sodium Carbonate—**
Boston, 168 brls.
Rouen, 50 bgs.
Antwerp, 4 cks.
New York, 112
Rio de Janeiro, 4 c.

**Sodium Chlorate—**
Antwerp, 4 c
Hamburg, 1 t.
Rotterdam, 1 19
St. Petersburg, 2

**Sodium Silicate—**
Barcelona, 85 brls.
San Sebastian, 35 cks.
Santander, 4
Corunna, 17
Valencia, 50

**Sulphur—**
Natal, 11 t. 12 c.
Valparaiso, 2 4
Ceara, 9 3 q.
Montreal, 22 18
Pt. Natal, 11 2

**Tallow—**
Alexandria, 197 brls.
Gothenburg, 8
Messina, 6 cks.
Montreal, 1
Almeria,

**Tar—**
Ambriz, 12 brls.
Kustendge, 10

**Tartaric Acid—**
Talcahuano, 1 c. £6
Havana, 2 14

**Tin Crystals—**
Lisbon, 2 c. £10

**Tin Oxide—**
Montreal, 5 c. 2 q. £36

**White Lead—**
Ferrol, 10 cks.

## HULL.

*Week ending July 23rd.*

**Bleaching Powder—**
Bari, 10 cks.
Bremen, 6
Bombay, 90 dms.
Riga, 10 30 kgs.

**Caustic Soda—**
Antwerp, 10 dms.
Danzig, 95
Fiume, 52
Harlingen, 18 cks.
Konigsberg, 30
Riga, 270
St. Petersburg, 10 brls.

**Chemicals** (*otherwise undescribed*)
Antwerp, 10 kgs.
Amsterdam, 3 cks.
Bergen, 5 6 pks.
Bombay, 1 cs. 2,115 180
Christiania, 29 75
Copenhagen, 60 pkgs.
Constantinople, 80
Catania, 1
Danzig, 4 25
Flushing, 3
Gothenburg, 25 24 5
Hamburg, 28 20 kgs.
Kurrachee, 60
Konigsberg, 100 pks.
Odessa, 8 140 7 pkgs.
Riga, 190 pks.
Rotterdam, 70 10
St. Petersburg, 4 116
Stockholm, 80
Stettin, 59 96 pks.
Wyburg, 10

**Cottonseed Oil—**
Antwerp, 100 c.
Amsterdam, 200
Bergen, 16
Bremen, 100
Christiania, 76
Flushing, 34
Gothenburg, 150
Hamburg, 865
Konigsberg, 56
Rotterdam, 1,193
Trieste, 461

**Creosote—**
Copenhagen, 40 cks.
Constantinople, 60
Gothenburg, 200
Odessa, 1,515

**Dyestuffs** (*otherwise undescribed*)
Hamburg, 1 ck.
Rotterdam, 2 bls.
Stettin, 1 cs.

**Gypsum—**
New York, 20 t.

**Linseed Oil—**
Aalesund, 10 c.
Bergen, 17
Bombay, 98
Christiania, 657
Copenhagen, 41
Christiansund, 42
Drontheim, 86
Fiume, 172
Helsingfors, 83
Hamburg, 149
Kurrachee, 16
Rotterdam, 71
Stavanger, 17
Trieste, 146

**Manure—**
Hamburg, 1,202 bgs.

**Mineral White—**
Bergen, 10 bgs.
Harlingen, 200
Rotterdam, 200

**Ochre—**
Rotterdam, 2 cs. 2 bls.
Stockholm, 10 cks.

**Paint—**
Harlingen, 3 cks.

**Painters' Colours—**
Antwerp, 1 cs. 5 cks.
Amsterdam, 2
Bergen, 25 dms. 2 100 pkgs.
Bombay, 64 cs. 8 111 pks.
Bordeaux, 1 dm.
Christiania, 1 cs. 13 140
Copenhagen, 6
Christiansund, 2
Catania, 1
Danzig, 60 pkgs.
Dunkirk, 1
Gothenburg, 39
Ghent, 6
Helsingfors, 4
Hamburg, 1
Jersey, 3
Kurrachee, 10
Konigsberg, 5
New York, 158 100 pks.
Odessa, 409 2 kgs.
Palermo, 25 firkins
Riga, 14
Rotterdam, 2 14 1 pkg.
Stockholm, 8
Trieste, 37

**Paraffin Wax—**
St. Petersburg, 40 bgs.

**Pitch—**
Antwerp, 188

**Soap—**
Rotterdam, 20 cs.

**Tallow—**
Hamburg, 1 ck.
Stockholm, 10
Stettin, 8

**Tar—**
Amsterdam, 6 cks.
Bergen, 5
Hamburg, 6
Rotterdam, 2
Stettin, 1

**Varnish—**
Bombay, 75 dms.
Copenhagen, 2 cs.
Gothenburg, 1
Helsingfors, 22
Harlingen, 4
Hamburg, 5
Rotterdam, 1 bl. 2 cks.

## GLASGOW.

*Week ending July 28th.*

**Acetate of Lime—**
Nantes, 5 t. £55

**Ammonium Carbonate—**
Stavanger, 10 kgs. £15

**Ammonium Sulphate—**
Nantes, 20 t. 3 c. £222
Valencia, 86 11¾ 785
Rouen, 22 10¾ 223
Leghorn, 12 10 1,250

**Aniline Oil—**
Oporto, 1 t. 6¼ c. £40

**Benzol—**
Rotterdam, 19 dms. £156

**Bichrome—**
Quebec, 2 t. 18 c. £95
Rouen, 20 6½ 637
Antwerp, 5 1 175

**Borax—**
Cape Colony, 2 t. £63
Montreal, 7 6½ c. 207

**Chemicals** (*otherwise undescribed.*)
St. John's, N.F., £6
Bombay, 1 t. 15¾ c. 26

**Chloride of Lime—**
Boston, 6 t. 8¾ c. £53

**Cobalt Matte—**
Rotterdam, 10¼ t. £507

**Copper Sulphate—**
Nantes, 25 t. 3 c. £377

**Dried Blood—**
Rouen, 12 t. 3 c. £90

**Dyestuffs—**
**Extracts**
Montreal, 3 t. 10¼ c. £84. 3s.
**Fustic Extract**
Montreal, 10¼ c. £21

**Linseed Oil—**
Bombay, 2 t. 14¼ c. £43

**Litharge—**
Montreal, 4 t. 9¾ c. £64

**Manganese—**
Rotterdam, 10 t. 3 c. £100

**Naphtha—**
Rouen, 13 t. 19¾ c. £170

**Paint—**
B. Ayres, 10 t. 3½ c. £88
Natal, 46
New York, 32
" 3 7¾ 57
Bombay, 139

**Painters' Colours—**
N. York, £28. 6s.
Calcutta, 3 t. 3¾ c. £63
Rouen, 16¼ 20
Boston, 50
Rotterdam, 5 cks. 37
Cape Colony, 94
Natal, 56. 12s.

**Paraffin Wax—**
Bilbao, 1 t. ¾ c. £28
Riga, 2 1 43
Oporto, 1 6¾ 27

**Pitch—**
Bombay, 28 t. 11½ c. £82
Quebec, 26 3¼ 62
Rouen, 50 13¼ 60
Boston, 102 11 215
Riga, 10 4 £17. 17s.
Oporto, 35 10 46
Bombay, 112 11 53

**Potash Salts—**
Cape Colony, 5½ c. £4,837

**Potassium Bichromate—**
Rouen, 18 t. 7¾ c. £647
Riga, 3 cks. 45
Bombay, 3 19¾ 119

**Potassium Prussiate—**
New York, £846

**Rosin—**
Bombay, 10 t. 12 c. £44

**Rosin Oil—**
Quebec, 4 t. 16¾ c. £56
Rotterdam, 20 brls. 40

**Salt Cake—**
Antwerp, 266 t. 17¼ c. £534

**Sheep Dip—**
Buenos Ayres, 2½ t. £73

**Soap—**
Calcutta, 8 c. £42
Cape Colony, 1 t. 8 21
New York, 3 9¾ 50
St. John's, N.F., 5 82
Bombay, 6 2¼ 70

**Soda—**
New York, 1 t. 17½ c. £23

**Sodium Bichromate—**
Rouen, 14 t. 3¾ c. £320
Leghorn, 12 10 297
Bombay, 1 7¼ 29

**Superphosphate of Lime—**
Valencia, 9 t. 18 c. £30

**Tar—**
Bombay, £161
Colombo, 22
Madras, 43
Calcutta, 104
Riga, 400 brls. 240
Quebec, 1 t. 2½ c. 48
St. John's, N F., 50 brls. 22. 10s.
Bombay, 19 t. 16 c. 55
Newfairwater, 165

**White Lead—**
Cape Colony, 2 t. 4 c. £41

## TYNE.

*Week ending July 23rd.*

**Alizarine—**
New York, 1 t. 18 c.

**Alkali—**
Antwerp, 1 t. 2 c.
New York, 7 11
Nykjobing, 1 4
Rotterdam, 1
St. Petersburg, 65

**Alumina Sulphate—**
Montreal, 9 t. 10 c.

**Ammonium Carbonate—**
Aalborg, 1 t.

**Ammonium Sulphate—**
Hamburg, 27 t. 8 c.

**Antimony—**
Montreal, 5 t.

**Arsenic—**
St. Petersburg, 3 c.

**Barytes—**
Hamburg, 10 t.

**Barytes Carbonate—**
Hamburg, 100 t.
New York, 82

**Bleaching Powder—**
Amsterdam, 29 t. 3 c.
Hamburg, 133 7
Antwerp, 5 1
Montreal, 76 15
Christiania, 2 9
Lisbon, 5 1
Rotterdam, 42 4
Libau, 4 9
Drontheim, 10 1
St. Petersburg, 126 3
Copenhagen, 14
Gothenburg, 30 1
Narva, 16 13

**Caustic Soda—**
Hamburg, 33 t. 9 c.
Antwerp, 15 13
Montreal, 60
New York, 145 1
Libau, 10 10
Copenhagen, 2 6
Gothenburg, 9 16

**Gypsum—**
New York, 110 t. 6 c.

**Litharge—**
Amsterdam, 1 t. 1 c.
Montreal, 13
Gothenburg, 10
Copenhagen, 1 4

**Magnesia—**
Hamburg, 12 c.
Antwerp, 2

**Magnesium Carbonate—**
New York, 1 t. 2 c.

**Paint—**
Hamburg, 1 t. 9 c.
Arendal, 5

**Soda—**
Antwerp, 8 t. 1 c.
Montreal, 5
Aalborg, 10 5
Rotterdam, 5 18
Drontheim, 2 13

**Soda Ash—**
Hamburg, 26 t. 6 c.
Christiania, 54 18
Aalborg, 19 11
Lisbon, 15 4
Copenhagen, 6 14
Gothenburg, 55 8
Narva, 50 7

**Sodium Sulphate—**
New York, 1 c.

**Sulphur—**
Montreal, 8 t.
Christiania, 50
Gothenburg, 20

**Superphosphate—**
Libau, 898 t. 15 c.

**Tallow—**
Hamburg, 14 c.

**Turpentine—**
Christiania, 8 c.

**White Lead—**
Montreal, 55 t. 9 c.

## GOOLE.

*Week ending July 6th.*

**Chemicals** (*otherwise undescribed*)
Hamburg, 37 cks.

**Coal Products** (*otherwise undesc'd.*)
Hamburg, 1 c. 19 cks.
Rotterdam, 125

**Dyestuffs** (*otherwise undescribed*)
Boulogne, 1 cs. 2 cks. 2 pkgs.

**Manure—**
Hamburg, 284 bgs.

**Pitch—**
Antwerp, 163 t.

**Sulphur Waste—**
Rotterdam, 467 t.

## GRIMSBY.

*Week ending July 11th.*

**Caoutchouc—**
Gothenburg, 2 cs.

**Chemicals** (*otherwise undescribed*)
Dieppe, 1 cs. 23 pkgs.
Hamburg, 234 cks. 12
Rotterdam, 4

**Coal Products** (*otherwise undesc'd.*)
Dieppe, 10 cks.

# PRICES CURRENT.

WEDNESDAY, August 3rd

Prepared by Higginbottom and Co., 116, Portland Street, Manchester.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities ma*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids :—** | | | | |
| Acetic, 25 °/₀ and 40 °/₀ | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | | 50/- | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 °/₀) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ( ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 0 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| ,, ,, (medium qualities) | ,, | 4 | 15 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, ·880=28° | per lb. | 0 | 0 | 3 |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 9 | 17 | 6 |
| ,, (grey) Hull | ,, | 9 | 17 | 6 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 2 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes :—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8¾ |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 10½ |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 8 |
| ,, 50/90 ,, | ,, | 0 | 1 | 3½ |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 6 |
| ,, (crude 60°) | per gallon | 0 | 1 | 3 |
| Creosote (ordinary) | ,, | 0 | 0 | 1 |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 0 | 11 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 44 | 12 | 6 |
| ,, Sulphate | ,, | 15 | 5 | 0 |
| ,, Oxide (copper scales) | ,, | 44 | 0 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 45 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 15 | 0 |
| ,, Litharge Flake (ex ship) | ,, | 14 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, ( brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |

| | | £ |
|---|---|---|
| Lime, Acetate (brown) | per ton | 5 |
| ,, ,, (grey) | ,, | 10 |
| Magnesium (ribbon and wire) | per oz. | 0 |
| ,, Chloride (ex ship) | per ton | 2 |
| ,, Carbonate | per cwt. | 1 |
| ,, Hydrate | per ton. | 17 |
| ,, Sulphate (Epsom Salts) | per ton | 2 |
| Manganese, Sulphate | ,, | 17 |
| ,, Borate | per cwt. | 2 |
| ,, Ore, 70 % | per ton | 4 |
| Methylated Spirit, 61° O.P. | per gallon | 0 |
| Naphtha (Wood), Solvent | ,, | 0 |
| ,, ,, Miscible, 60° O.P | ,, | 0 |
| **Oils :—** | | |
| Cotton-seed | per ton | 19 |
| Linseed | ,, | 20 |
| Lubricating, Scotch, 890°—895° | ,, | 7 |
| Petroleum, Russian | per gallon | 0 |
| ,, American | ,, | 0 |
| Potassium (metal) | per oz. | 0 |
| ,, Bichromate | nett per lb. | 0 |
| ,, Carbonate, 90% (ex ship) | per ton | 18 |
| ,, Chlorate | per lb. | 0 |
| ,, Cyanide, 98% | ,, | 0 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 |
| ,, Nitrate (refined) | per cwt. | 1 |
| ,, Permanganate | per cwt. | 3 |
| ,, Prussiate Yellow | per lb. | 0 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 |
| ,, Muriate, 80 % ( do. ) | ,, | 7 |
| Silver (metal) | per oz. | 0 |
| ,, Nitrate | ,, | 0 |
| Sodium (metal) | per lb. | 0 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 6 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 |
| ,, Acetate (ex-ship) | ,, | 18 |
| ,, Arseniate, 45 % | ,, | 11 |
| ,, Chlorate | per lb. | 0 |
| ,, Borate (Borax) | nett, per ton. | 29 |
| ,, Bichromate | ,, per lb. | 0 |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | nett pr. ton (10 ton lots) | 11 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 11 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 10 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 9 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, (10 ton lots) | 8 |
| ,, Bicarbonate | ,, | 6 |
| ,, Hyposulphite | ,, | 7 |
| ,, Manganate, 30% | ,, | 16 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 |
| ,, Nitrite, 98 % | per ton | 30 |
| ,, Phosphate | ,, | 15 |
| ,, Prussiate | per lb. | 0 |
| ,, Silicate (glass) | per ton | 5 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 |
| ,, Stannate, 40 % | per cwt. | 3 |
| ,, Sulphate (Salt-cake) | per ton. | 1 |
| ,, ,, (Glauber's Salts) | ,, | 1 |
| ,, Sulphide | ,, | 7 |
| ,, Sulphite | ,, | 6 |
| Strontium Hydrate, 100% | ,, | 8 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 |
| ,, Barium, 95 % | ,, | 0 |
| ,, Potassium | ,, | 0 |
| Sulphur (Flowers) | per ton. | 8 |
| ,, (Roll Brimstone) | ,, | 6 |
| ,, Brimstone : Best Quality (nominal) | ,, | 5 |
| Superphosphate of Lime (26 %) | ,, | 2 |
| Tallow | ,, | 26 |
| Tin (English Ingots) | ,, | 98 |
| ,, Crystals | per lb. | 0 |
| Zinc (Spelter) | per ton | 21 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 |

THE

# HEMICAL TRADE JOURNAL

AND

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## DVERTISEMENTS.

TED, experienced practical man who under-
ds newest process making Peroxide Hydrogen. State experience, in confidence. Address, J.C.H., *Chemical Trade Journal* Office.

GAS TAR, SPENT OXIDE.

Widnes Local Board invite TENDERS for
e purchase of about 700 Tons of Gas Tar from their Gas Works for the s ending 30th September, 1893; (2) The purchase of the present stock le, about 150 tons.
ender and conditions of contracts may be obtained from W. I. Carr, orks, Widnes. Endorsed Tenders to be delivered to the undersigned in the 23rd inst. The Board do not bind themselves to accept the y tender.

H. S. OPPENHEIM, Clerk.

, Widnes, 10th August, 1892.

TENDERS FOR TAR.

Directors of the Exeter Gaslight and Coke
ny invite TENDERS for their Surplus TAR for One Year, from the ctober next.
Company's Works, filled into purchaser's tanks.
Cash Monthly.
ders, endorsed "Tender for Tar," will be received by the undersigned Wednesday, the 31st of August next; but the Directors do not bind accept the highest or any tender.

By order,
W. A. PADFIELD, Secretary and Manager.

gust 5th, 1892.

## Advertisements.

dvertisements of Situations Vacant, Premises on Sale or To be Let s Wants, and Specific Articles for Sale by Private Contract are e *Chemical Trade Journal* at the following rates:—

30 Words and under ..... 2s. 0d. per insertion.
Each additional 10 words ..... 0s. 6d. ,,

**ments of Situations Wanted are inserted at one-half the when prepaid, viz.:—**

30 Words and under ..... 1s. 0d. per insertion
Each additional 10 words ..... 0s. 3d. ,,

ertisements, Announcements in the Directory Columns, and all Adver- prepaid, are charged at the Tariff rates which will be forwarded on

ements intended for insertion in the current week's issue h the office by **Wednesday morning** at the latest.

## EMPLOYMENT AGREEMENTS.

THE recent judgment in the case of the Badische Anilin u. Soda Fabrik *versus* Schott and others, respecting the terms of an agency agreement, is an important addition to established precedents in the law of employment contracts. It not only shows us how unwilling the law is to interfere with arrangements made "by men of full age and competent understanding," but it clearly defines the nature and amount of the restraint which the stronger party may impose upon the weaker.

In the case in point, the defendants had covenanted not to be interested in any like or similar business for a period of three consecutive years from the termination of the agency, touching which Mr. Justice Chitty said: "In my opinion, the clause is not unreasonable for the protection of the plaintiffs' trade."

A second question related to the trade name of "Schott, Segner and Co.," which by the ninth clause of the agreement "remains the property of the plaintiffs, before the determination of this contract as well as afterwards, no matter on what ground the determination of this contract may take place."

The plaintiffs petitioned the Court to grant an injunction restraining the defendants from carrying on a like or similar business, and especially so in their own names. The learned Judge granted the injunction sought for.

No doubt many of our readers will say with Mr. Justice Chitty, "the defendants with their eyes open, and after their previous experience during many years of the nature of the agency, deliberately entered into the agreement, and consented to be bound by the restraining stipulation." No doubt this was so, but we think the peculiar mode of exhorting to obedience generally adopted by large corporations should be taken into account by our courts of law, especially in this so-called free-trade country. Of what use would it be for the covenantor to complain to his task-master that his coat fitted him too tightly? The reply would be readily forthcoming—You needn't put it on, there are plenty who will wear it, even if it squeezes the flesh off their bones—and there is this further to remember, that contracts such as these when once entered into, are like Sinbad's old man, and can never be thrown off in the lifetime of the covenantor, without injury to him, he failing to appreciate how firmly the covenantor has him in his power until the contract is expiring.

Mr. Justice Chitty stated—"The result of the authorities down to the present time on this question of a covenant in restraint of trade appears to be as follows:—Where the restraint is general, that is without qualification, it is bad, as being unreasonable and contrary to public policy; where it is partial, that is subject to some qualification, either as to time or space, then the question is whether it is reasonable, and if reasonable it is good in law."

This explanation clears the atmosphere of a good deal of doubt, but the necessity of a judicial investigation is found in

a further sentence—"the reasonableness depends on all the circumstances, which must be duly weighed in each case," but we are certainly surprised at the dictum of the learned judge, that the greater the area of the specified business the greater the need for unlimited restraint upon the agent. We have yet to see the result of an application to the High Court by the Sun for an injunction to restrain the Moon and Stars from shining upon the earth.

One thing always seems to us to be forgotten in these arguments, and that is, the part played by the agent in building up the business in his district, and this renders the argument advanced by Mr. Justice Chitty of the village baker or cobbler untenable.

Too frequently the agent has all the work, but the principal is ever ready to secure for himself the lion's share of the pecuniary results of his agent's work and toil. It is pretty generally recognised now-a-days that the making and the selling of an article are two distinct branches of an industry, it is of no use manufacturing, ever so cheaply, unless the article can be well sold. Here comes in the value of a trade name, and the plaintiffs in this case have certainly hamstrung the steed by securing to themselves the trade name of their former agents.

The effect of all this upon British industry is too patent to require explanation. The enormous profits of these foreign manufacturing corporations are only kept up by suppressing competition, which they do by every method the laws of civilised countries allow. Perhaps we cannot blame these corporations for taking every advantage our law offers them; it is our crude, insufficient, and one-sided commercial laws that are the root of the evil, and especially is this true of our patent laws.

One more word on this matter and we have done:—Why is it that a firm having "world wide" reputation, to use the words of Mr. Justice Chitty, should prefer to trade under the name of its agents, rather than in its own name? Is the agent better respected or better known than the principal? There must be some reason for it—perhaps some of our readers can supply the explanation.

## THE BRITISH ASSOCIATION.

THE annual meeting of this association was begun at Edinburgh on Wednesday of last week. The attendance of strangers amounted closely to what it was expected to be, 1,800 tickets being disposed of before the close of the first day, which, with the addition of the members, made a company very little short of 3,000.

The first meeting of the general committee was held on Wednesday morning, August 3rd, the retiring president, Dr. W. Huggins, F.R.S., was in the chair. The minutes of the last meeting were read by Sir Douglas Galton, F.R.S., general secretary, and approved. The report of the council for the year 1891-92 was then read. The same evening the president, Sir Archibald Giekie, delivered his opening address in the Synod Hall, Castle Terrace.

After briefly referring to the fitness of Edinburgh for the meeting on this particular occasion owing to its being the centenary of Hutton's "Theory of the Earth," the president went on to relate the coldness with which the theory was received, and how by the energetic work of Playfair, Hutton's teaching began to meet with a wider acceptance. Following this train the president pointed out how much of modern work, and inquiry had sprung from the fruitful teaching of the originator of this theory, and proceeded to expound the same in reference to the observations made and knowledge gained concerning the history, age, and geological construction of the earth during recent years.

On the following days the various sections held their meetings. From among the many the proceedings of those given below, have been selected as bearing chiefly upon such matters as are of interest to our readers.

### MATHEMATICAL AND PHYSICAL SCIENCE SECT

Professor A. Schuster, Ph.D., F.R.S., F.R A.S., as presiden section, drew attention to the striking incident when on th January the mantle of Sir Wm. Thomson fell on the infa Kelvin, the president's happy allusion being heartily responde the members of the section. Proceeding, the President said he it to be more generally recognised that in the matter of aptit science certain nations possessed peculiar advantages, instancing in the case of accurate measurements, with which the na Regnault and Amagat were so honourably associated. He furt that nations possessing as they do distinctive characteristics, country in particular, the diacritical feature was the prominen played by the

#### SCIENTIFIC AMATEUR.

By an amateur he did not mean a man who only takes up scien leisure hours, but rather one who has had no academical trainin rate in that branch of knowledge which he finally selects for stu may, perhaps, best define an amateur as one who learns his sc he wants it and when he wants it. I should call Faraday an a He would have been impossible in another country; perhaps h be impossible in the days of the Science and Art Department. names will occur to you, the most typical and eminent being Joule. We are in danger of losing one great and necessary f the origination of scientific ideas. If I am right, there is a advantage in having one section of scientific men beginning th untrammelled by preconceived notions, which a systematic tra science is bound to instil. The chief difficulties in wh Universities are placed at present are due to the fact that th given way too much to outside advice; but I cannot help exp strong conviction that their highly specialised entrance examina a curse to all sound school education, and will prove a still m curse to what concerns us most nearly, the progress of scientifi ledge. If school examinations could be more general, if theories could only be taught at an age when a man is able to independent judgment, there might be some hope of retain originality of ideas which has been a distinctive feature of this and enabled our amateurs to hold a prominent position in the h science. At present a knowledge of scientific theories seems t kill all knowledge of scientific facts. It is by no means true complete knowledge of everything that has a bearing on a p subject is always necessary to success in an original investigati many cases such knowledge is essential, in others it is a hin Different types of men incline to different types of research, an well to preserve the dual struggle. The amateur supplies th and the Universities supply the cold water; the former, boili often with ill-considered and fanciful ideas, does not like the icy and the professional scientist does not like the latent heat of m densing steam, but nevertheless the hotter the steam and the co water the better works the machine. Sometimes it happe boiler and cooler are both contained in the same brain, and each can boast of a few such in a century, but most of us have to satisfied with forming only an incomplete part of the engine of But while it is necessary to recognise the great work done by professional scientists, it seems not untimely to draw their att the damage done to themselves if they overstep their le boundaries, and especially if they seek popular support f theories, which have not received the approval of those who a petent to judge. An appeal from Alexander sober to Alexander will not prove successful in the end. The gradual disappeara the amateur may be a necessary consequence of our in educational facilities, and we must inquire whether any n advantages are offered to us in exchange. There is one direct which it would seem at first sight, at any rate, that a proper co study could do much to facilitate the progress of research. discoverer is born, and cannot be made, would it not be possible rate to train the judgment of our students so that they may form a opinion on the new theories and ideas which are presented to Is there much evidence that great discoveries have been se delayed by want of proper appreciation? Those who exper temporary check, owing to the fact that public opinion is not their ideas, are often amply rewarded after a lapse of a few year disappointment which Joule may have felt during the time h met with adverse criticisms from the official world of science doubt amply compensated by the pleasure with which he wat subsequent progress of research in the new domain which coveries have opened out. The judgment of the scientific wor to me to be tending too much towards leniency to apparently theories, because there is a remote chance that they may cont germ of real value. Worse than bad theory or logic, is bad exp work. Should we then not rigorously preserve any infl incentive which encourages the beginner to avoid carelessnes consider neither time nor trouble to secure accuracy? The p admission to the Royal Society has been most beneficial in th

ourable ambition to see his paper published in the "Tran-
f that society has preserved many a student from the
ublication of unfinished work.

CHEMICAL SCIENCE SECTION.

Herbert McLeod, F.R.S., F.C.S., president of the section,
address to the subject of the adoption of a uniform set of
mbols.
ed to the work of the committee appointed in 1834, and
at with all the advance made in the past years, it is still a
have only learned what is required of a perfect notation,
t to formulate the same. However, in view of what was
ne hoped that before the association again met at Edinburgh
ation would be an accomplished fact.
dent then turned his attention to

THE TEACHING OF CHEMISTRY,

subject his remarks were of exceptional significance and
Ie said in a city like Edinburgh, where the first chemical
was started by Dr. Anderson in 1823, it was not necessary to
e extreme importance of teaching chemistry by practical
unfortunately, even at the present time, endeavours were
ach the subject by means of lectures (sometimes without
) or by reading. The attempt to learn chemistry without
perience reminds one of the well-known story (for the truth
will not vouch) of the mathematician who lectured on
osophy; he was visiting a foreign laboratory, and stopped
ce of apparatus and asked what it was. On being told it
pump he exclaimed, "Dear me! I have lectured on the
r 25 years, and this is the first time I have seen one."
It is problematical if his students can have derived much
om his lectures. Teaching of the kind to which reference
en made is generally given to candidates for examinations
intend to take up chemistry as their chief subject. At the
e chemistry is required for entrance and preliminary
s from many classes of students. There is no doubt that it
nt means of education, teaching a boy to observe and draw
from his observations; but if he makes no observations it is
han useless cram, the memory might as well be exercised
a novel by heart. This imperfect mode of teaching
rises principally from the difficulty of obtaining properly
laboratories in schools, in addition to which the very strong
metimes disagreeable, and making it inconvenient to have
near a house, to say nothing of the possible dangers to the
their contents; but there is no help for it, the teaching
ompanied by experimental demonstration, as was indicated
ts on the teaching of chemistry which have been presented
iation in former years. It must be admitted that examina-
always discover the best student; many are capable of
r examinations with a small knowledge of their subject;
a good knowledge, fail from nervousness or other causes;
present time, examination, although far from perfect, is
only means we have of judging the fitness of the candidate.
selecting questions the examiner may, to a considerable
ourage cram; he should endeavour to find out what the
actually seen, and to make them draw conclusions from
they have either themselves observed, or which have been
them; it is only in this manner that chemistry can be used
of mental training. These remarks do not apply to the
f students intending to make chemistry their profession,
many opportunities, in the large laboratories of Great
the Continent, of obaining all the necessary instruction.

MICROBES AS CHEMICAL AGENTS.

another class of workers in chemistry who must not be
the present time, as they have much influence on the life
l and have been working for ages, but have only recently
ised. I mean those organisms which are included under
of microbes. These organisms are capable of producing
anges which entirely surpass all the results hitherto obtained
ist in his laboratory. That the transformation of sugar into
carbonic anhydride in the ordinary process of fermentation
iving organism has been known for some years; the im-
sformation of ammonia into nitrous and nitric acids in the
n shown to be due to organisms which have recently been
by many chemists; it is possible to transform ammonia
cids in the laboratory by oxidation under certain conditions
h temperature, whereas the organism does the work quite
sly at the common temperature. Other organisms have
f producing complex organic poisons by the alteration of
constituents of the animal body, and the relation of these
the study of diseases is of the highest possible importance.
to have a discussion on this interesting subject by many
horities, both from the chemical and biological points of
l be unnecessary to pursue the subject further, unless it be
to urge some of the younger chemists to work at the chemical aspect of bacteriology. They must be prepared for hard work and many disappointments, for the subject is undoubtedly a difficult one. I cannot conclude this address without reference to the great loss which chemistry has sustained by the death of Professor A. W. von Hofmann. All who worked with him must have been deeply impressed by his capacity for work and his power of inducing work in others. I well remember his lecture at the Royal Institution in 1862 on Mauve and Magenta (which owed so much of their success to his work), in which he produced the original specimen of benzine which had been obtained by Faraday from oil-gas in 1825. He pointed out that Faraday had prepared this substance and investigated its properties without ever supposing that it could have any practical application. This seems to me the true spirit of the scientific investigator. In many cases the reward consists solely in the consciousness that the investigator has done his duty. In some cases the reward may take a more substantial form, and I have just been informed that Professor von Hofmann has left a large fortune, the result of the applications of his discoveries in technical chemistry.

On the motion of Sir H. Roscoe, seconded by Professor A. von Hofmann, thanks were voted to the president.

## A NEW DEVELOPER.

AMIDOL.

DEVELOPING has often been and is now the *crux* of the amateur photographer, and the introduction of a one-solution developer which is capable of producing good results with ordinary skill, will be hailed as a boon by many. Speaking in reference to a number of experiments made upon six different qualities of commercial dry plates, Mr. J. Spiller, F.I.C., says the results he obtained were eminently successful, the developer being easily applied and possessing special properties which commend it to the notice of photographers, be they amateur or professional.

The fact that it can be used in a sulphite solution alone, *without any admixture of free alkali*, is an important consideration in its favour, and thus dissolved it is sufficiently permanent to serve as a one-solution developer, being diluted for use with three or four times its bulk of water immediately before employment.

The stock solution in concentrated form is prepared according to special instructions, as follows:—

| | |
|---|---|
| Distilled water | 1000 parts. |
| Sodium sulphite cryst. | 200 ,, |
| Amidol | 20 ,, |

Further diluted, as already stated, and used with a small proportion of potassium bromide as a restrainer, the images can be made to appear with any required speed and the density modified merely by altering the strength of the developer; the resulting negatives seem uniformly clear and brilliant without any trace of fog. Tourists especially would find it most convenient for general use, but they will do well to carry always with them a small supply of potassium bromide in crystals, so as to be ready for all emergencies.

I cannot speak too highly in praise of amidol as a developer, for with it the operator has his process completely under control. I find, moreover, that it is quite easy to develop many plates in succession with the same solution, which is not the case with pyrogallol.

Mr. G. L. Addenbroke likewise speaks in tones of high commendation of this and also another developer called metol, the amidol being specially suited in his opinion for the development of gelatino-bromide prints.

Messrs. Fuerst Bros., of Philpot-lane, London, who have been appointed agents in this country for these new developers, state that they will be only too happy to send gratis, samples of amidol to anyone interested, so that they may judge for themselves. On the continent amidol may be obtained from Mr. J. Hauff, of Fuerbach, Stuttgart, by whom these developers have been introduced.

## THE CONCENTRATION OF OIL OF VITRIOL.

*(Specially Contributed.)*

THERE are many different forms of platinum apparatus employed in this country, and in Europe, for concentrating oil of vitriol, in the construction of which a good deal of ingenuity has been displayed. The older form of still, consisting substantially of a deep flat-bottomed retort, has been superseded by newer forms of apparatus more or less elaborate, and all of which attempt to fulfil certain requirements, considered necessary for economical work. Of these newer forms of apparatus, Prentice's pans have been largely adopted, and have ex

many years yielded satisfactory results. It is generally admitted that the economical principle involved in the construction of these pans originated with Faure and Kessler, who conceived the idea, and, we believe, first adopted it in practice, by constructing the platinum evaporators so that the acid would be exposed in thin layers to the influence of the heat. Rapid ebullition and quick concentration was thus obtained, and also increased output per unit weight of platinum used. Faure and Kessler employed shallow flat-bottomed vessels, whilst Prentice introduced the same type of vessel, but with corrugated bottoms, whereby the heating surface of the pan was increased. The apparatus, as a whole, may be considered one of the best of its kind, as it is cheap, efficient, and an economical evaporator.

The system of concentrating O.V. in Prentice's pans is somewhat elaborate in its arrangement. It consists essentially of one or two corrugated platinum pans, a platinum boiler or still, and a series of leaden pans in which the weak chamber acid is heated, and partly concentrated, before it passes through the platinum apparatus. The shallow platinum pans with corrugated bottoms are about 24 inches long by 18 inches wide, and 5 inches deep, and have a V-shaped groove running around their edges. A leaden hood, covering each pan, rests in these grooves, the joint being luted by the products of distillation, which condense on the inner surface of the hood, and flow into the grooves. To the side of each cover or hood a draught pipe is attached, which serves to carry away the products of distillation. The acid, after it has passed through these pans, flows into a flat-bottomed still or boiler, as it is usually called, about 60 inches in length by 18 inches wide, and made entirely of platinum, where it is concentrated to the required degree. From thence it is cooled by passing through a series of long bottle-shaped platinum tubes, immersed in cold water, before it is finally stored in carboys. A platinum arm, bent at right angles, one end of which is fixed to the dome of the boiler, whilst the other is inserted into a platinum tube, about 7 feet long and 2½ inches in diameter. This tube carries away the weak acid vapour evolved during the last stages of concentration. The long tube here mentioned is surrounded by a water jacket, after the manner of a Liebig's condenser. The water jacket is, of course, supplied with a constant stream of cold water, entering at the lower end, and passing out more or less heated at the other.

The leaden pans are heated by the waste heat passing away from beneath the platinum vessels. They are constructed of strong sheet lead, 16 or 18 lbs. to the foot, and of such a size that the total heating surface corresponds to about 30 square feet per ton of oil of vitriol made per 24 hours. They vary in depth from 15 to 18 inches, and are connected together by means of small overflow shoots. The corrugated platinum vessel receiving the hot partially concentrated O.V. from the last (hottest) leaden pan, is placed almost immediately above the fire, and when two such pans are used the flame or fuel gas passes direct from beneath one to the other, the two pans being in close proximity, and in a direct line with one another. A brick fire-bridge is placed in the flue (which in itself is not very deep) beneath these pans, and below the end nearest the fire, in order to cause the flame to dart upwards against the bottoms of the pans, and thus induce violent ebullition. The flame is usually severe, and with this arrangement the firing is hard and requires constant attention. The final concentrator or platinum boiler is placed immediately in a line with these pans, and, of course, receives the hot fuel gases or flame, as the case may be, after it has passed from beneath them. From thence the fuel gases pass under the leaden pans, through long flues, containing baffling walls, and so arranged that the waste heat first of all circulates beneath the leaden pan containing the hottest and strongest acid, then beneath the others in the series, before finally passing away to the chimney.

The acid from the chambers flows through the leaden pans in the contrary direction to the flow of the fuel gases. It enters the back or weakest pan, and then through all the others in succession. It then passes into the first corrugated pan, then through the second (if two are in use), and lastly through the platinum boiler, from which it flows continuously through the platinum cooling apparatus into the carboys or other store vessels. The back leaden pans, viz., those which first receive the acid, simply heat it, little or no concentration taking place in them. As it flows through the others towards the platinum apparatus, it increases in temperature and specific gravity, and a very appreciable concentration takes place in those nearest the fire. The vapours arising from the hot acid are almost invisible, and contain practically no acid. There is therefore no necessity to cover them. In no case does the acid actually boil in these pans. When this happens (due probably to local overheating) the chemical action of the acid on the sheet lead gives rise to excessive local wear and tear, sulphate of lead is rapidly formed, the acid becomes "milky," and a hole is quickly worn through the sheet lead. The presence of sulphate of lead in the acid or "milkiness" is a sure indication that the lead is being dissolved. When the strong pans become overheated this generally takes place, and to guard against it manufacturers protect the bottoms of these pans with an arrangement of layers of tiles, sand and cast-iron plates, amounting in the aggregate to several inches in thickness, so that any rapid increase in the temperature of the flues beneath will not rapid the leaden bottoms. When a pan becomes milky active step once taken to cool the acid, and, of course, the pan itself.

The following figures represent the temperature and specific of the acid expressed in degrees of Twaddle's hydrometer, in of six leaden pans working on this system, and with brimstone direct from the chambers :—

| | Temperature. Fah. | Twaddell @ Tem. of Pan. | Twad 60° |
|---|---|---|---|
| | Degrees. | Degrees. | Deg |
| No. 1 Pan .... | 160 | 106 | 1 |
| 2 ,, .... | 220 | 101 | 1 |
| 3 ,, .... | 249 | 102 | 1 |
| 4 ,, .... | 260 | 104 | 1 |
| 5 ,, .... | 280 | 107 | 1 |
| 6 ,, .... | 283 | 113 | 1 |

The strength of the acid entering the system varies, of course the mode of working the chambers, and the specific gravity given may be considered rather below the average of manufa practice. When working O.V. made from brimstone, the chamb is never concentrated in the Glover Tower, but frequently pyrites acid is to be made the chamber O.V. is passed down the Tower into store tanks from which it flows direct into the pl apparatus. This acid is contaminated with arsenic, iron, and se etc., all derived from the pyrites, and these impurities deposit platinum pans, causing frequent stoppages for cleaning and trouble.

Pyrites acid is now largely purified by precipitating the ars sulphide with sulphuretted hydrogen, and for this purpose the c O.V. is frequently diluted with water to a suitable strength be removal of the arsenic can be accomplished with certainty arsenic, moreover, exists in chamber O.V. in the state of trio pentoxide $As_2O_3$ and $As_2O_5$ respectively. It is well known latter oxide is more difficult to precipitate with sulphuretted h than the trioxide, and means are sometimes adopted to re higher oxide to the lower state before precipitating the ar sulphide. Any dilution of the acid before purifying represents sight so much more fuel consumed in its concentraton, but as of fact, the amount of waste heat passing away from the platin and boiler allows a certain latitude in extending the system of pans, so that the diluted vitriol (say 90° Twaddell), may be trated before reaching the pan corresponding to No. 1 of th series, and thus the expenditure of extra coal is avoided.

The following figures relating to the work done by such a concentrating brimstone vitriol, are compiled from results obta actual practice. The acid from the strongest leaden pan regis the average about 290° Fah., and a sp. gr. of 1·70 (= 140° T at 60° Fah. The O.V. of 168° Twad. finished per shift of amounted to 8,750 lbs., equal to about 50 carboys (10 gallons c each containing 175 lbs. acid. The strength of the concentrat is given as 168° Twad., but in reality it seldom comes so high usually 165 to 166° Twad. The reason of this is well know coal consumed per day of 12 hours amounted, on an average cwts. 3 qrs. 10 lbs,, which includes that used for heating up gives a consumption of coal equal to 37·8 lbs. per carboy of ac or 4·65 lbs O.V. were concentrated per lb. of coal used.

The distillate from the first platinum pan is practically water containing only small traces of acid. It is usually allowed to into the atmosphere. That, however, from the second platinu stronger in acid, and is conducted by a leaden pipe to th chambers, where it is used instead of steam.

The strength of the acid boiled off in the platinum boiler a dense in the Liebig's condenser varies a good deal; it is controlled by the work of the leaden pans. If the acid leavin pans is below 140° Twad. (cold) then the distillate condensed platinum tube is about 90° Twaddell; but if it be maintained strength the average distillate will reach as high as 110° T There are other conditions which control the strength of this we such, for example, as the nature of the firing, whether it be medium. Excepting the presence of hyponitric acid, and this be remarked, is seldom found in it, this acid is very pure when c from brimstone O.V. It is stored in large earthenware ves concentrated by itself in glass retorts for laboratory and pharma purposes.

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Coal at Ashton.—A coal field, which is believed to cov acres, and which is seven feet thick, has been discovered at under-Lyne, Moss Colliery. It is said to be a splendid house c

## EXPORTS AND IMPORTS FOR JULY.

E Board of Trade returns for last month show a marked increase in the imports, while the exports have decreased. In chemicals ports, with the exception of nitrate of soda, are smaller, while ports of chemicals, coal, and iron and steel have also decreased. following is a comparison of the exports and imports of certain s during the past month with the same month last year :—

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

| | | Quantities. | |
|---|---|---|---|
| | | 1891. | 1892. |
| rine .. .. .. | cwts. | 90,930 | 82,574 |
| r ore and regulus .. | tons | 14,053 | 24,330 |
| —dry and wet .. | cwts. | 85,586 | 79,075 |
| e of soda .. .. | ,, | 18,897 | 65,610 |
| and stearine .. | ,, | 123,718 | 179,053 |
| .. .. .. | ,, | 57,629 | 41,715 |

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

| | | Quantities. | |
|---|---|---|---|
| | | 1891. | 1892. |
| .. .. .. | cwts. | 456,156 | 363,819 |
| t .. .. .. | tons | 50,108 | 51,029 |
| r—all kinds .. .. | cwts. | 100,484 | 127,455 |
| nd coke .. .. | tons | 3,047,885 | 2,965,131 |
| nd steel .. .. | ,, | 290,803 | 221,994 |
| cal manures .. .. | ,, | 32,416 | 29,316 |
| seed .. .. .. | ,, | 5,302 | 4,198 |
| .. .. .. | ,, | 65,472 | 62,581 |

## HE MINING INDUSTRIES OF HUELVA.

E British Vice-Consul at Huelva, in his trade report for the past ear, says that the great strides in prosperity made by the e of Huelva during the last 25 years are due to the scientific pment of its enormous mineral wealth. It is not, however, the e that that mining district has been the scene of great activity, e large masses of ore in its mountains furnished quantities of prized metals to the old nations of the Mediterranean. Accord- history and tradition, the Phœnicians were the first-known people the Huelva mines, remains of their workings, ovens, coins, her articles having been found in most of the mines. After the ians came the Romans, and during their dominion in Spain operations were greatly extended, as is proved by the great of scoriæ to be found in every mine. This is calculated to be 20,000,000 to 25,000,000 tons, showing that immense es of ores must have been extracted during the centuries of ian and Roman work, until it ceased with the invasion of the s. It is not apparent that either the Goths or Moors worked elva mines, so that they have practically been idle for 14 cen- For the little that was done during the last and the first half of tury can hardly be taken into account. The first great impulse en by the foundation, between 1866 and 1875, of large foreign ies. The mines began to be thoroughly opened out, railways nstructed to the port of Huelva, and magnificent shipping piers ilt in the river. Other companies then followed, and a period activity set in, completely altering the aspect of the province he port. The copper pyrites, or cupreous sulphur ore, com- f about 48 per cent. sulphur, 44 per cent. iron, and 3 per cent. is the principal ore mined in the district, and contributes very rably to the copper production of the world. By far the greater sent to Great Britain, although large quantities are sent to d and Germany; France and the United States are also con- and a small quantity goes to Denmark. British vessels convey all the copper pyrites, but a good many cargoes have been to Germany in German steamers. The pyrites sent to the States is of the poorer class, containing about 1¼ per cent. of only on the average, and is shipped principally to Philadelphia w York. The ore is also partly treated at Huelva by smelting, produces the regulus, containing about 30 to 40 per cent. of , and by precipitation on to pig-iron in large tanks, giving cas- precipitate with 60 to 95 per cent. of copper, according to ent. The iron pyrites is what is called pure—that is to say, it ns 44 per cent. of iron and 52 per cent. of sulphur, but no copper, t is extracted from one mine only. Besides the considerable ities shipped to Great Britain, there is a large consumption in France, Germany, and the United States; it is, as a rule, friable, and not hard and compact like copper pyrites. Manganese has been exported in larger quantities recently, but the low price still keeps a great many mines closed. It is very generally distributed over the mining district of the province, and is of a good quality. Neither quicksilver nor lead are products of Huelva, the former coming from the famous mines at Almaden and the latter from the Linares district. They are shipped direct to London.

## EXPORTS OF PETROLEUM FROM U.S.A.

THE chief of the Bureau of Statistics, Mr. S. G. Brock, gives the exports of petroleum and petroleum products from the United States during the month of May, 1892, and during the eleven months ending May 31st, 1892. The total value of the shipments for May was $3,171,926 as against $3,585,276 in 1891, and for the eleven months ending May 31st, $40,718,240 as opposed to $47,273,930 of 1891. The shipments were as follows :—

| CRUDE. | Gallons. |
|---|---|
| Total for May, 1892 | 2,265,788 |
| Total for May, 1891 | 4,766,128 |
| Total for 11 months ending May 31, 1892 | 91,971,974 |
| Total for 11 months ending May 31, 1891 | 84,017,152 |
| NAPHTHAS. | |
| Total for May, 1892 | 638,524 |
| Total for May, 1891 | 354,057 |
| Total for 11 months ending May 31, 1892 | 11,944,762 |
| Total for 11 months ending May 31, 1891 | 11,600,066 |
| ILLUMINATING. | |
| Total for May, 1892 | 48,365,314 |
| Total for May, 1891 | 42,203,146 |
| Total for 11 months ending May 31, 1892 | 510,660,045 |
| Total for 11 months ending May 31, 1891 | 520,579,208 |
| LUBRICATING. | |
| Total for May, 1892 | 2,726,444 |
| Total for May, 1891 | 2,852,997 |
| Total for 11 months ending May 31, 1892 | 32,152,019 |
| Total for 11 months ending May 31, 1891 | 30,750,376 |
| RESIDUUM. | |
| Total for May, 1892 | 3,654 |
| Total for May, 1891 | 21,756 |
| Total for 11 months ending May 31, 1892 | 430,710 |
| Total for 11 months ending May 31, 1891 | 1,447,666 |

# Reports of Companies.

### DIVIDENDS.

THE SANITAS COMPANY.—The directors of this company have declared an interim dividend for the six months ended June 30th last at the rate of 10 per cent. per annum.

PRICE'S PATENT CANDLE COMPANY, LIMITED, has declared a dividend for the half-year ended June 30th of 12s. 6d. per share, which will absorb £23,437. out of a profit of £29,500.

THE SALT UNION, LIMITED.—The directors of the Salt Union, Limited, announce dividends for the six months ended 30th June at the rate of 7 per cent. per annum on the preference shares and at the rate of 5 per cent. per annum on the ordinary shares.

MESSRS. HENDERSON, CRAIG AND CO., LIMITED.—The directors of this company have declared an interim dividend at the rate of 10 per cent. per annum on the preference shares and 6 per cent. per annum on the ordinary shares for the half year ending 30th June, 1892. The balance carried forward to the next account is £350.

MESSRS. ARTHUR GUINNESS, SON, AND CO., LIMITED, in their report for the year ended June 30th state that the net profit, after making provision for bad debts and including dividends on investments and interest on loans, amounted to £685,609., which, together with the balance brought forward, makes a total of £754,037. After providing for the debenture interest, the dividend on the preference stock, the balance of income-tax, and the interim dividend paid in March on the ordinary stock, there remains available for appropriation £395,973. The directors propose to apply this sum as follows:—To add £100,000. to the reserve fund and £30,000. to the depreciation fund, and to pay to the ordinary stockholders a final dividend of 9 per cent. for the half-year, making a total dividend for the year of 15 per cent., tax free. These payments will absorb £355,000., leaving £40,973. to be carried forward.

# Legal Intelligence.

## LIVERPOOL ASSIZES.

*(Before Mr. Justice Williams and a Special Jury.)*

HOPPS AND CO., *v.* LENNARD AND OTHERS.

### IMPORTANT PETROLEUM CASE.

At the Liverpool Assizes, last week, Messrs. A. Hopps and Co., Meade-King, and Robinson and Bowring and Archibald brought an action to recove £800 from J. M. Lennard and others, for the loss of a certain quantity of petroleum from the steamship *Attila*, belonging to defendants.

Mr. Kennedy, Q.C., and Mr. Carver appeared for the plaintiffs, and Mr. Bigham, Q.C., and Mr. Walton for the defendants.

It appeared that in March, 1890, the *Attila* took on board at Philadelphia 996,471 gallons of petroleum, equivalent to 2,804 tons 9 cwt. 3 qrs. 9 lbs. This quantity was shipped by the plaintiffs, Bowring and Archibald, under a bill of lading signed by the captain of the ship on behalf of the defendants, whereby the petroleum was to be delivered at Birkenhead on payment of freight at the rate of 17s. 6d. per ton of 20 cwt. intake weight. The *Attila* arrived at Birkenhead, and delivered to the plaintiffs, A. Hopps & Sons, and Meade-King, and Robinson, under the said bill of lading, 2,635 tons 3 qrs. 5 lbs., the defendants failing to deliver 169 tons 9 cwt. 4 lbs. The plaintiffs say that the defendants wrongfully pumped out the 170 tons

John Milne, chief officer of the *Attila*, was the first witness called. He said they first began to pump water ballast out of No. 5 tank on the evening of the 25th. During that night they continued the pumping. The pumping went on for such a long time that he wondered what was the reason, and thereupon took a bucket, brought up some of the liquid, and found that it contained oil and water, and ordered the pumping to be stopped. He made the discovery between 11 and 12 (midnight). The next morning, at about 5 o'clock, he and the second mate looked at the tanks. He lifted the door of No. 2, and found that about one-half of the oil had disappeared. He then called the chief engineer, telling him of this loss The captain was not then on board. The engineer, the second mate, and witness again went and looked into No. 2. He told the engineer that oil must have been pumped out along with the water. They then went and looked at No 5 and No. 7. There was nothing wrong with the latter tank. No. 5 was then found to contain more oil and water than was in it on the previous evening. He tried it with a sounding rod. He could not tell the quantity. He knew the two intermediate valves which stood aft of the charthouse. They were both open on the morning of the 26th. He immediately telegraphed to the captain to come aboard, as things were not going on satisfactorily. Later on he sent him another telegram urging him to come on board at once. He did not come on board, however, until the following day—the 27th. The captain asked how the pumping was going, and he said all right; he then told him of the oil disappearing. He asked what had become of it, and he replied that it must have been pumped out along with the water. Upon two occasions after this he had had conversations with the engineer. As far as he could recollect, the first time was in Birkenhead while discharging, and again while walking from Hartlepool to Middlesbrough. He had also had a conversation with the captain about it.

By Mr. Bigham.—He arrived in Liverpool that morning, and had had about half an hour's talk with the solicitor. A few months after the ship arrived home he received a visit at his house from Captain Towill, who offered him some money for certain information regarding the loss of the oil. He told him that the oil was pumped out with the water or words to that effect. He would have nothing to do with the money offered, which was £5. When they came into Philadelphia three tanks he believed were full of water. They were Nos. 3, 4, and 5. He could not be certain, however. He could not say when the water in No. 3 was pumped out. It was pumped out on the starboard side. When he took the bucket with the liquid on the evening of the 25th he was accompanied by the tank man, and he called his attention to the fact that it contained oil. It was not always a fact that when they got to the bottom of a tank they got oil and water mixed. The oil and water in the bucket, he should say, was dirty. It would be just the kind of stuff they would find if the tank had not previously been cleaned out. If the tank had been cleaned before being filled with water ballast, when it was pumped dry no oil would be noticed on the water.

Re-examined by Mr. Kennedy.—He could not say whether No. 5 tank had been cleaned during the voyage or had been filled before the vessel left Liverpool. There was more oil in the water taken in the bucket than there should have been. There was a "long way" more oil in the tank on the following morning than there had been on the previous evening. The valves were supposed to be closed. There might have been an accident which would prevent the valve shutting *completely, but there* was nothing to show this. The engineer never told him that he had found one of the valves an eighth of an inch open.

By the Jury.—The fore and aft pipe would stand about 1½ to 2 feet above the skin of the tank. When he examined the tank the following morning he found that more liquid was in it, but he could not say how it was.

Mr. Kennedy said there was a line of pipe running through the tanks. This was intersected by valves. If one of these valves was partly open the oil would find its own level, and if it met with no resistance it would enter the pipe line. Then, if the pump was started, it would be drawn up. The whole matter would, of course, depend on the condition of the interior of the tanks and the quantity of liquor they contained.

Professor Redwood, the eminent petroleum expert, said he had been consulted from time to time with regard to the American petroleum industry. In answer to Mr. Kennedy he explained the method of finding the specific gravity of petroleum. He calculated that to make an error of 169 tons in the cargo of this vessel the specific gravity must have been placed at 7·756 instead of 7·805. This was an error of 50 points with the hydrometer.

By Mr. Kennedy.—He had been through the figures supplied to the court on the certificate, and there was nothing whatever to impeach the result of the estimate. Such a mistake as 50 degrees would not be possible by the use of the same instrument, for if would be outside its range.

Mr. Bigham said it was agreed that they delivered the full cargo at Birkenhead, and he did not think it would be disputed that they delivered the full cargo they carried. What was suggested was that some oil was run into the ship at Philadelphia, and was pumped out with water. The real question was, whether any part of the oil that was pumped from the land tanks was thrown overboard through the pipe used to discharge the water. All the elaborate calculations which had been put in were for the purpose of putting the defendants in an absolutely difficult position. They were to show that whatever quantity of oil the ship would hold, a larger quantity was pumped into her; and in this case some of it must have found its way out again. The whole basis of these calculations depended upon the accuracy of the observations made at the time, and if they ascertained the real specific gravity of the oil. It was true Mr. Redwood said that to account for a difference of 50 in the specific gravity would be absurd, and he (Mr. Bigham) agreed with him. It was necessary, in pumping oil, to know the capacity of the tank being filled, and if any fresh oil was put into the same tank, it was necessary to take observations again. Again, they had to take further observations when the pumping was finished. All these observations must be accurate, and it would be seen that there were many opportunities for making mistakes, which would account for the whole thing. His object was to show that there were many possibilities of error, and if he could satisfy them that no oil was pumped overboard it would show that there must have been some miscalculation, and something wrong in the data upon which the calculations placed before them were based. He then proceeded at some length to state the case for the defendants.

At the conclusion of the case, and without his lordship summing up, the jury gave a verdict for the plaintiffs.

His lordship said he entirely agreed with the verdict.

## AN AGRICULTURAL COLLEGE FOR CHESHIRE.

At the last meeting of the Cheshire County Council among the business before the Council was the report of the Technical Instruction Committee, which showed signs of commendable activity. An exhaustive scheme had been prepared, the prominent feature of which is the proposal to establish an Agricultural College, to be situated in a good central position in the county. The objects of the college are to be—(1) To supply a thorough and systematic course of training in those subjects of special interest and use to youths intending to follow the occupation of agriculturists; (2) to combine practical work with theoretical instruction; (3) to give particular attention to those sciences underlying the practice of agriculture; (4) to provide this education at a cost within the reach of any interested in on dependent on farming; (5) to provide a means whereby boys from the elementary schools may obtain the best instruction, so far as agricultural subjects are concerned. The college is to be provided with pupils as follows.—1. By scholarships: (*a*) The County Council might offer one scholarship to each rural electoral division, open to pupils from elementary schools or evening classes; this would provide about 36. (*b*) Landed proprietors might probably offer scholarships to the sons of tenants on their own estates. By this means no doubt a dozen would be obtained. (*c*) Special bodies, such as the Chamber of Agriculture, might probably found one or two. 2. Paying pupils: Sons of tenant farmers, land agents, or others. As the cost per year would not be more than £25. to £30. it would be within the reach of many. The whole scheme is now under consideration by the Technical Instruction Committee, and it will afterwards be discussed by the Council.

# NOTICES.

## LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of
THE CHEMICAL TRADE JOURNAL
From
MR. JOHN HEYWOOD,
2, Amen Corner,
Paternoster Row, E.C.,
On usual trade terms.

## FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed* Money Order is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

## *ANSWERS TO CORRESPONDENTS.*

R. B. and Co.—We thank you for your kindness in intimating the fact to us.
F. Bros.—Yours to hand for which we thank you. They shall be sent.
L. M. Co.—We shall be pleased to hear further from you.
J. R.—Not at present.
J. L. and T. L.—Thanks for notification of the change. Your request has been attended to.
U. A. Co.—See this week's issue.
W. C. Co., Ld.—The remaining numbers will be sent this week.
K. C. and Co.—The back numbers have been forwarded to Japan.

# Selected Correspondence.

## CHESHIRE WATERS.

*( To the Editor of the Manchester Guardian. )*

Sir,—An announcement occurs in a recent issue of your paper which without some qualification might reflect disadvantageously, and undeservedly so, in certain quarters. It was to the effect that Mr. Carter Bell, the Cheshire county analyst, had found seven samples of drinking water worse than the effluents from the Salford sewage. When I say that, representing and acting on behalf of eleven different sanitary authorities in Cheshire, I have analysed upwards of 2,000 samples of water in fifteen years it will be evident that much attention has been given to this subject, and that I may claim to have a considerable practical acquaintance with the subject of domestic water supply. During the same period it has also fallen to my lot to make myself acquainted with the effluents from the Salford sewage. Now, whilst admitting that it is quite within the scope of the great ability of our county analyst to produce an effluent from any sewer characterised only by extreme purity, yet I must add that the discrepancy between such samples of Salford's effluents and any samples of drinking water, however bad, which have been submitted to me has been simply immense. For, as Professor Wanklyn observes, it must be remembered that any water to be presented at all as a potable substance must be a substance, chemically speaking, in a high degree of purity. With all our bad Cheshire waters, we preserve a death register in which diarrhœa is never epidemic and rarely appears.

I am, etc.,
John M. Fox,
Medical Officer of Health, Mid-Cheshire Combined Sanitary District.

Lymm, Cheshire,
August 2, 1892.

# Trade Notes.

Messrs. Schott Segner and Co.—This firm, we learn, have recently given notice that their business has been dissolved. Further information concerning this matter will be found in our columns this week.

Extending use of Oil Gas.—The Midland Railway Co. has decided to erect four works for the production of oil gas at Leeds, Bradford, Birmingham and Leicester respectively.

The United Asbestos Co., Limited.—The Lords of the have again awarded the United Asbestos Company, Limited tract for the supply of all asbestos goods required in the R during the ensuing twelve months, the principal articles being block packing, "Victor" metallic packing, and hard spun y ing for glands; "Victor" metallic sheeting, tape, rings, ovals, steam and hydraulic joints; asbestos millboard, asbestos tape, for steam pipes, etc.

H. Green, trading as drysalter and colour merchant, Wheeler-street, Aston, near Birmingham, has made a deed of a ment with his creditors, who are as follows :—

| | | £ |
|---|---|---|
| Davy, Yates, & Routledge | London | 11 |
| Wright, Layman, & Umney | ,, | 11 |
| Lucas, Christopher | Birmingham | 47 |
| Reade, Henry, & Son | ,, | 11 |
| Tomlinson, H., & Son | ,, | 14 |
| Fox, Francis F. | Bristol | 24 |
| Heaton, Smith, & Co. | ,, | 31 |
| Colthurst & Harding | ,, | 59 |
| Wyleys, Limited | Coventry | 32 |
| Merrikin, W. S. | Hull | 76 |
| Storry, Whitty, & Co., Limited | ,, | 58 |
| Seddon, J. & J. | ,, | 26 |
| Bankers' claims | | 40 |

Kühn and Schroeder.—This firm of drysalters of 8, Cl street, Piccadilly, Manchester, have recently made a deed of a ment. The following are the creditors :—

| | | £ |
|---|---|---|
| Burton, W., & Sons | London | 11 |
| Société Anonyme de Produits Chimiques | Antwerp | 255 |
| Greigy, J. R., & Co. | Basel | 19 |
| Durann, Hughenin & Co. | ,, | 907 |
| Setiengesellschaft fur Anlin Fabr | Berlin | 31 |
| Voltenberger & Fochr | Fenerbach | 30 |
| Dawson, J., & Co. | Glasgow | 30 |
| Atkin, T., & Co. | Liverpool | 145 |
| Manufacture Lyonnaise | Lyons | 13 |
| Levoz & Boasson | ,, | 51 |
| Geiler, F. | Manchester | 250 |
| Tillmans, Eter, Meer & Co. | Merdingen | 71 |
| Schroeder & Stodelman | Oberlalinstein | 150 |
| Bankers' Claims | | 21 |

Working Hours in Bonded Factories.—The perfum essence section of the London Chamber of Commerce met on T the 3rd inst., for the purpose of considering the desirability of ing the Board of Customs for an extension of the working bonded factories. It was agreed that the present hours for w bond—from eight to four in summer, and nine to four in wint unreasonable in relation to the perfumery trade, in which t hours of labour are from eight a.m. to seven p.m. all the ye and that such short hours added considerably to the cost of p necessitating in the first place a larger number of workers, sequently a larger wage bill; and in the second place larger which meant a larger rental than need be. Further, it was that in asking for an extension of the hours, the trade we nothing new in principle, a free customs service being al ceded, and that an extension from six a m. to six p.m. ha been granted in the out-door Customs service. It was agreed that the Chamber of Commerce should petition Her Board of Customs praying that the hours of attendance of th at bonded perfumery warehouses should be extended to eig six p.m. all the year round.

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

Benzol if anything is a trifle weaker, though there is not m business passing. 1s. 3d. for 50-90's and 1s. 7d. for 90's may as to-day's values. In anthracene there is no change to r the prices given in a contemporary are absolutely fallaciou anthracene could not possibly be bought under 10d., stock well-known hands, who will not sell below this price, and remains as we have already quoted. Pitch still remains firm winter promises a good market.

There is practically no variation to report in the position phate of ammonia market since last week. Lower prices about, but it cannot be traced that any sales have been made hands under prices last quoted. Provincial prices remain 16s. 3d. to £9. 17s. 6d. f.o.b. at all ports. Beckton has bee from £10. to £9. 17s. 6d., while outside London makes £9. 16s. 3d. to £9. 17s. 6d. There is rather more enquir ments from Liverpool.

## ›RT ON MANURE MATERIAL.

ues to be very much of a holiday character and any s rather in favour of buyers.

›w probably be sellers of 75/80% Florida phosphate c.i.f. to U.K., but there seems to be no disposition to ed Peace River rock is held firmly for 7½d. per unit, f South Carolina River or land rock 7d. would no , the selling interests being more varied. There is l for Continental phosphates and we do not hear of siness.

›f bones is unchanged. Nothing reported in River 'or crushed East India bones £4. 2s. 6d., ex quay ng accepted, for shipment, and £4. 5s. would be average quality Bombay bone meal. On spot, . 10s. required for East India bone meal, ex store mon grinding are less enquired for, and £3. 15s. to ›w full value, supplies of home-collected bones being ly cheap. Nearest value of River Plate bone ash s. 6d. on 70%, nett, Hamburg terms.

· nitrate of soda is quiet, on spot at 8s. 3d. per cwt. ty and 8s. 6d. for refined. Due cargoes of ordinary 8s. 1½d. to 8s. 3d. according to size. June-July 8s. 4½d., and later sailings 8s. 4½d. to 8s. 6d. per rgoes, being scarce, are held for about 3d. per cwt.

›r dried blood is small. River Plate is worth barely :x quay Liverpool, whilst home-prepared is held for r., according to position of works.

## THE METAL MARKETS.

EDNESDAY.—Pig iron more active. Scotch warrants . cash. Middlesbrough 38s. 9d. cash, and Hematite Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s s. cash, and £45. 5s. to £45. 12s. 6d. three months. :s closed at £94. 2s. 6d. to £94. 12s. 6d. cash, and os. three months. Australian, £94. 12s. 6d. cash. '97. to £97. 10s. Lead flat: Spanish, £10. 7s. 6d.; s. to £10. 12s. 6d. Silesian spelter, ordinary, £21. ver, first hands, £7. 2s. 6d., second hands, £6. 17s. *es* dull: Cape 1 9/16 to 1 11/16; Copiapo, 2 3/16 to 2 5/16; ; Mason and Barry, 3 11/16 to 3 13/16; Rio Tinto, 15½ to ½ to 4¾; Namaqua, ¾ to 1.; Panulcillo, ⅜ to ½.

MPTON, WEDNESDAY.—The demand is steady, and 'ed quotations have been sustained. Australian and nts are larger. Marked bars, £8.; medium, £7.; £6. 5s.; galvanised corrugated sheets, £11. 12s. 6d; £6. 17s. 6d.; doubles, £7. 5s.; lattens, £8.; hoops, is tube strip, £6.; cinder pigs, 37s. 6d.; medium, ot blast, 62s. 6d.; Northamptons, 44s. 6d.; Derby-; Lincolns, 47s. Fuel in fair demand and prices

WEDNESDAY.—Market again firm, with moderate ı at 42s. 0½d., 42s. 1½d., and 42s. 1d. cash, also at s. 3½d. one month; closing with buyers at 42s. . 3½d. one month, sellers ask ½d. more. Middles-h buyers at 38s. 9d. cash, sellers ask 39s. 4d. Hema-ıyers at 49s. 3d. cash, sellers ask 49s. 9d.

## ›LANEOUS CHEMICAL MARKET.

rade there is little movement to report for the past remain generally unaffected. Bleaching powder has her more attention, and the price remains at £7. 10s. ker's works, for near and early delivery. For con-duction upon this price is made as heretofore. For spot quotations for 10 ton lots and upwards are: ', £11. 15s.; f.o.b. Liverpool, 74%, £11. 5s.; 70%, £9. 2s 6d.; cream, 60%, £8. 17s. 6d. Soda ash in nues fairly active, and the prices are as reported last stals steady in price. Chlorate of soda still at 8d. per potash, 6½d. to 6¾d. Recovered sulphur, £4. 15s. it maker's works. Roll sulphur somewhat scarce on es of lime, brown and grey, are rather firmer for for-Acetate of soda is in good demand at the advanced id is without improvement. For liquid carbolic acids ll continued for prompt delivery, and prices are consequently firm. There is also a slight improvement in price of crystal carbolic. White powdered arsenic is much firmer in price, and business has been done at £12. net per ton, f.o.r., the tendency being towards a still further advance. Potash, caustic and carbonate, are in good demand, and prices are steady both for prompt and forward delivery.

## LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is dull with a tendency to move in buyer's favour. Practically no business is passing, a few sales during the week having been made in Lagos at £20. 12s. 6d. to £20. 15s. Olive has improved, having been in moderate request at £32. 10s. to £38. per tun. Sales of Malaga have been made at £35. 15s. Linseed is very steady at 20s. 3d. to 20s. 6d. per cwt. in export casks, and has been enquired for during the week. Cottonseed has ruled at last week's quotations, Liverpool refined being 19s. 3d., and American 21s. to 24s. per cwt., according to quality. Castor oil: good seconds Calcutta owing to arrivals could be obtained for 2 7/16d. per lb. ex quay, the enquiry being good, but 2½ is value ex store. First pressure French continues at 2 11/16d. per lb. Tallow, with the exception of some business done in South American at 26s. is very dull, and prices by no means encouraging to sellers. Resin, common, is firm at 3s. 9d. to 3s. 10½d. per cwt., and some sales have been effected at this price. Spirits of turpentine though quoted 22s. 9d. in the early part of the week are now steady at 22s. 3d. to 22s. 6d. per cwt. Petroleum: American and Russian refined unaltered.

COLOURS.—Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s., medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: common, £6.; medium, £10.; finest, £20.

## THE LIVERPOOL MINERAL MARKET.

The market has continued steady during the week. Manganese: No arrivals to report; demand good. Borate, 7d. per lb.; sulphate £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite: Raw lump, stocks considerably reduced; prices firmer. Raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): Increased orders have been booked at full figures; lump 20s., seconds 16s., and thirds 12s. French chalk: Arrivals nil; a good business, however, is doing at full prices. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump very scarce at 90s. to 95s.; nuts, 70s. to 80s.; whilst finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore, in consequence of depression in trade, very quiet; Bilbao, Irish, and Cumberland easier. Santander and manganiferous, there is more doing. Emerystone: Best brands in demand; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal firmer. Chrome ore rather quiet, and little doing. Antimony ore and metal flat; prices firmer. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. 10s. Calamine quiet. Strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese somewhat easier, but prices are unchanged. Plumbago more doing. Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady; common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) steady; finest quality 22s. to 23s.

## TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals: There is no change to report; business generally is quiet, with the exception of bleaching powder for which product the demand continues at £7. 10s. to £7. 12s. 6d. per ton.

Bleaching powder, softs, £7. 10s. per ton, and hards, £7. 15s. per ton; caustic soda, 77/76%, £11. 15s. per ton, 70%, £10. 5s. per ton;

recovered sulphur, 2 cwt. bags, £4. 17s. 6d. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton, in 10 ton lots; silicate of soda, 75° Tw. £3. per ton, 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per ton; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 7d. per lb. less 6%; pearl hardening, £3. 10s. per ton nett; pure white sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta crystals, £19. per ton; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; hydrate of barium, £11. per ton.

South Durham salt unaltered, 9s. 6d. to 10s per ton, f.o.b. Tees.

Coal: Trade may be said to be fairly steady, with a good demand for best and second kinds. Gas coals in good request for prompt at 8s. 6d. per ton, f.o.b.; best steam, 10s. 6d. per ton, f.o.b.; manufacturing coal, 5s. 6d. to 6s. 6d. per ton, delivered works on Tyne, according to position of colliery.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, Tuesday.

An important meeting of the Mineral Oil Association of Scotland took place in Glasgow, last week, to discuss the position of burning oil in reference to the coming winter. It was virtually agreed that the oil companies should hold the article at the figures ruling since the rearrangement effected in August of last year, and as given below. The Association meets to-morrow again, to finally decide, and to take the formal pledges of the delegates for the upholding of the compact for another year. There is room for some hitch arising between now and the hour of meeting, certainly, but nothing of the sort is anticipated. There is no fresh movement in any of the other paraffins.

About the only feature in the section of general chemicals is the firmness of bleaching powder, which is scarcer than ever and almost clamoured for, with a tendency to move a step upward in price. In certain hands the extreme of £7. 12s. 6d. nett Tyne, is asked. Quietness prevails in all the other lines, most of them showing the demand at under the average rather than over.

There is no improvement at all to note in sulphate of ammonia, and the spot price still halts at £9. 15s., really, although a maker here and there pretends to hold for £9. 17s. 6d.

Chief prices current are:—Soda crystals, £2. 17s. 6d., nett Tyne; alum in lump, £5. 10s., nett Glasgow; soda ash, 1⅜d., less 2½%, Tyne; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. nett Liverpool; refined alkali, 1⅝d., less 2½% Tyne; bleaching powder, £7. 10s. to £7. 12s. 6d. nett Tyne; saltcake, 36s. 6d.; borax, English refined, £29., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 6½d., less 5% any port; nitrate of soda, 8s. 4½d.; sulphate of ammonia, £9. 15s. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £15. 10s. less 5% Liverpool; paraffin scale (hard), 2$\frac{15}{16}$d., and soft 2$\frac{5}{16}$d. to 3d. per lb.; paraffin wax, 120°, semi-refined, 3⅝d. to 4d.; paraffin spirit (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales about 1d. lower); ditto (lubricating), 865°, £3. 5s. to £3. 15s., 885°, £4. 10s. to £6., and 890/895°, £5. to £7. Week's imports of raw sugar at Greenock were 36,535 bags.

## THE COPPER MARKET.

Messrs. Harrington and Co. in their fortnightly report dated Liverpool August 3rd, 1892, state:—

The Chili Charters for the past fortnight are advised as 1,000 tons, which with the same quantity for the previous fortnight makes 2,000 tons for the month, thus making the total charters since 1st January 13,150 tons. Exchange 18⅝d.

We are now going through what we consider the most unfavourable period for copper, considerable imports and only moderate deliveries, but we think all this will change before the end of the year, when the *decrease* in exports from America will tell favourably.

During the past fortnight there has been very little business passing in G.O.B.'s and G.M.B.s, and values have fluctuated between £45. 6s. 3d. cash and £45. 16s. 3d. three months, and £44. 12s. 6d. and £45. 2s. 6d. respectively, at which the market closes to-day.

The *Beechdale* which arrived at Dunkirk from Santa Rosalia, brought 1,800 tons Boleo Matte, equal to 1,290 tons fine copper, which has gone into the French stocks.

The total stocks in Liverpool, Swansea, London, and Havre show an increase of 664 tons for the fortnight, which with an increase of 2,270 tons for the previous fortnight, makes a total increase of 2,934 tons for the month.

The stocks include about 3,700 tons of copper sold, but not yet delivered to smelters.

The visible supply shows an increase of 750 tons for the fortnight, which with an increase of 2 083 tons for the previous fortnight, makes a total inoreasc of 2,833 tons for the month.

The total deliveries for the fortnight are 4,399 tons, which with 3,952 tons for the previous fortnight, makes a total of 8,351 tons for the month.

The present stock of English G.M.B.'s in warehouse, Liverpool and Swansea, is 2,827 tons, against 2,722 tons on the 18th ult. The delivery in Liverpool and Swansea was 55 tons, but 160 tons being added to the Swansea stock, makes an increase of 105 tons for the fortnight.

Refined and manufactured sorts are quiet. Official quotations being: Tough cake £47. 15s. to £48. 5s., best select £48. 15s. to £49. 5s., Indian sheets £53., strong sheets £56 10s., and yellow metal sheets 4$\frac{15}{16}$d. to 5d. per lb.

The sales of furnace material comprise—at Liverpool: 2,900 tons Argentiferous Anaconda Matte, 200 tons Argentiferous Montana Matte, 69 tons Argentiferous Chili ore, all on private terms; 76 tons Alosno precipitate, at 9s. 1½d.; 10 tons Carpio precipitate, at 8s. 9d; 125 tons Cueva de la Mora precipitate, at 8s. 9d; 200 tons Mason's precipitate, on private terms; 240 tons Brazilian ore, at 8s. 6d.; and 50 tons Australian ore, at 7s. 10½d. per unit. At Swansea: To arrive, 1,300 tons Quebrada regulus, on private terms; and 500 tons Quebrada ore, at 8s. per unit.

# New Companies.

Earles and King, Limited.—This company was registered on the 28th ult., with a capital of £60,000., in £10. shares, to acquire and take over as a going concern the business carried on at Liverpool, under the style of "Earles and King"; to enter into the agreement referred to in clause 3 of the articles (with Messrs. A. Earle, A. J. Tod, and H. King), and to carry on the business of seed-crushers, oil-refiners, cake-manufacturers, grain and seed merchants, etc. The subscribers are:—

| | Shares. |
|---|---|
| A. Earle, A17 and 18, Exchange Buildings, Liverpool, seed-crusher | 1 |
| A. J. Tod, A17 and 18, Exchange Buildings, Liverpool, seed-crusher | 1 |
| H King, A17 and 18, Exchange Buildings, Liverpool, seed-crusher | 1 |
| A. Div, A17 and 18, Exchange Buildings, Liverpool, cashier | 1 |
| J. Mitchell, A17 and 18, Exchange Buildings, Liverpool, bookkeeper | 1 |
| H. Holmes, A17 and 18, Exchange Buildings, Liverpool, clerk | 1 |
| W. Marshall, 65, Burlington-street, mill manager | 1 |

Gaulter and Co., Limited.—This company was registered on the 30th ult., with a capital of £300, in £1. shares, to take over on lease the premises situate at 6, West-street, Fleetwood, Lancs., and to carry on the business of chemists and druggists.

Iberian Mines Syndicate, Limited.—This company was registered on the 28th ult., with a capital of £30,000., in £1. shares, to acquire any concessions, grants, rights, etc., in and over lands, estates, etc., in Spain and Portugal, to enter into an agreement with Messrs R. B. Lavery and F. M. de los Rios for the acquisition of certain concessions in Spain, and to carry on the business of miners, smelters refiners, metallurgists, mining engineers, brickmakers, lime and cement manufacturers, ironmasters, founders, etc. The subscribers are:—

| | Shares. |
|---|---|
| R. B. Lavery, 6, Portland-place, W. | 1 |
| F. Martinez, 3, Upper Avenue-road, N.W., merchant | 1 |
| J. H. M. Scott, Southport, Lancs. | 1 |
| E. E. Warren, 84, Oxford-street, W. | 1 |
| W. Negus, 67, Lincoln's Inn Field, W.C., solicitor | 1 |
| H. Peel, 67, Lincoln's Inn Field, W.C., solicitor | 1 |
| H. W. Matthews, 9, Coleford-road, Wandsworth, S.W. | 1 |

Oncken Patent Staveless Barrel Co., Limited.—This company was registered on the 30th ult., with a capital of £150,000., in £2. shares (of which 50,000 are ordinary and 25,000 deferred), to enter into and carry into effect an agreement to be made between Woodhouse and Rawson United, Limited, of the first part, Mr. G. A. Oncken of the second part, the Merxem Works, Limited, of the third part, and this company of the fourth part, and to carry on the manufacture and sale of staveless barrels, boxes, panels, veneers, and other articles made from or connected with the manufacture of wood or machinery for the same, the business of contractors for the sale, letting on hire, erection and maintenance of the said machinery, and also that of electrically and chemically treating wood and other substances. The subscribers are:—

| | Shares. |
|---|---|
| ·ay, 78, Upper Grange-road, S.E. | 1 |
| 3, Park-villas, Park-road, Merton | 1 |
| , 10, Brook-road, Holloway, N. | 1 |
| an, 34, Faraday-street, Walworth, S.E. | 1 |
| , Railton-road, Herne Hill, S.E. | 1 |
| Colvestone-crescent, Dalston, N.E. | 1 |
| ·4, Austin Friars, E.C., solicitor | 1 |

ɔN Co., LIMITED.—This company was registered on the 29th ult.' £50,000., n £10. shares, to enter into an agreement with Messrs. G. Renshaw, and A. H. Renshaw, for the sale to the company of : other rights for the use of attrition mills and magnetic separators, tain plant, machinery, and premises; to enter into the contracts ıse 3 of the articles (with Messrs Steel, Peech and Tozer, Limited, folds, Limited), and to carry on the business of grinders and als, manufacturers of iron, steel, coke, cement, manure, paint, cals, smelters, engineers, founders, etc. The subscribers are :—

| | Shares. |
|---|---|
| , Suffolk-lane, E C., engineer | 1 |
| 73A, Queen Victoria-street, E.C., contractor | 1 |
| 47, Evelyn Gardens, S.W., solicitor | 1 |
| , Wharton-road, W. | 1 |
| ı, East Dulwich, S.E., solicitor | 1 |
| ., Prince Arthur-road, Hampstead, N.W., solicitor | 1 |
| ., Cecile Park, Crouch End N. | 1 |

# The Patent List.

*ɔmpiled from Official sources in the Manchester Technical der the immediate supervision of George E. Davis and is, who report professionally upon the value of Chemical*

## LICATIONS FOR LETTERS PATENT.

ıing **Apparatus.** R. Smith. 13,534. July 25.
ɔhuric **Acid.** S. Meyer. 13,538. July 25.
ıduction **of Tubes.** F. E. Elmore. 13,541. July 25.
for **Electrolysis.** F. E. Elmore and A. S. Elmore. 13,542.

ratus **for Furnaces.** M. Neuerberg. 13,546. July 25.
f **Alloys and Purification thereof.** J. B. Torres. 13,555.

ing **Chimney Tops.** J. G. Kirtley. 13,573 July 26.
R. F. Strong and A. Gordon. 13,601. July 26.

**Collecting Ammonia and Ammonia Salts from Gaseous and Liquid Mixtures.** E. de Cuyper. 13,686. July 27.
**Apparatus for Drying Peat.** J. D Brunton. 13,762. July 28.
**Secondary Batteries.** J. B. Lee. 13,764. July 28.
**Improvement in Dyes, Pigments, etc.** C. S. F. Mellor. 13,766. July 28.
**Smoke Consuming Furnaces.** H. G. Hudson, G. W. Harwin, and L. R. Havers. 13,793. July 29.
**Marking Soap.** C. A. Drake. 13,812. July 29.
**Smoke Consuming Apparatus.** D. Durbec. 13,817. July 29.
**Improvements in the Manufacture of Chlorine.** H. W. Wallis. 13,822. July 29.
**Destroying the Green Colouring of Castor Oil.** H. Rinck. 13,845. July 29.
**Treating Sewage with Liquor Obtained from Pyrites Beds.** J. H. Kidd. 13,904. July 30.

# Gazette Notices.

## PARTNERSHIPS DISSOLVED.

A. B. HILL AND A. C. HILL, under the style of A. B. Hill and Son, Southwark street, S.E., wholesale druggists and manufacturing chemists.
S. T. RUSSON AND H. A. RUSSON, under the style of Russon Bros., Birmingham, chemists and druggists.
J. ROBINSON, H. G. ROBINSON, H. M. HARTLAND, AND J. C. MORRIS, under the style of T. Robinson and Co., Gloucester, corn and manure merchants; as far as regards T. Robinson.
H. BRADBY AND J. L. NEALE, under the style of H. Bradby and Co., Brighton, wholesale and retail oil and colour and varnish, etc., merchants; as far as regards H. Bradby.
J. W. GILL AND T. LITTLEFAIR under the style of S. Gill and Son, Pendleton, Manchester, chemists and druggists; as far as regards T. Littlefair.

## BANKRUPTCY ACTS, 1883 and 1890.

### Receiving Orders.

MARTIN, G. E. (trading as G. E. Martin and Co ), Fenchurch-street, City, Hoe-street, Walthamstow, importer of essential oils.
COXON, J. B., Penshaw, Durham, late of Monkwearmouth and Sunderland, grease manufacturer, etc.
FRY, S. H. (trading as the Fry Manufacturing Co.), Chandos-street, Charing Cross, and Kingston-on-Thames, dry plate maker.
LYON, R. B. (trading as Lyons Cement Co.), Newcastle-on-Tyne, and as the Tyne Patent Bathbrick Co., West Boldon, cement manufacturer and bathbrick maker.
PARKER JACKSON (trading as J. Parker and Co.), Wakefield, soap manufacturer.

### Adjudications.

FRY, S. H. (trading as the Fry Manufacturing Co.), Chandos-street, Charing Cross, and Kingston-on-Thames, dry plate maker.
LYON, R. B. (trading as Lyons Cement Co.) Newcastle-on-Tyne. and as the Tyne Patent Bathbrick Co., West Boldon, cement and bathbrick manufacturer.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## NDON.

*ling July 30th.*

**me—**
pkgs. Johnson & Hooper
pkgs. A. & M. Zimmermann
pkgs. A. & M. Zimmermann
c. Arnati & Harrison
**hate—**
pkgs. R. W. Greeff & Co.
pkgs. Soc. Mar. Belge
t. W. Balchin
Phillipps & Graves
cks. S. Ward & Co.
Blundell, Spence, & Co.
J. B. Orr & Co., Ld.
120 pkgs. W. Harrison & Co.
G. Steinhoff
W. Harrison & Co.
Magee, Taylor, & Co
Colthurst & Harding
—
pkgs. L. & I. D. Jt. Co.

**Bromine—**
Germany, 40 pkgs. A. & M. Zimmermann

**Caoutchouc—**
Madagascar, 206 c. L. & I. D. Jt. Co.
France, 10 Anderson, Weber, & Smith
Mombassa, 4 Lewis & Peat
E. Indies, 180 Ralli Bros.
,, 105 Williams, Torrey, & Co., Ltd.
Zanzibar, 160 L. & I. D. Jt. Co.
Singapore, 117 Huttenbach & Co.
,, 66 Kleinwort, Sons, & Co.
,, 74 J. H. & G. Scovell
Savanilla, 55 Stiebel Bros.

**Carbonic Acid Gas—**
Holland, 33 pkgs. Volcanic Æration Co.

**Caustic Potash—**
France, 100 c. Carey & Sons
,, 200 Chiswick Soap Co.

**Chemicals** *(otherwise undescribed)*
Germany, 39 pkgs. T. H Lee
Holland, £42 A. Demaret
Denmark, 12 Bailey & Leetham
Germany, 8 L. & I. D. Jt. Co.
,, 13 Hernu, Peron, & Co.
,, 56 A. & M. Zimmermann
Holland, 10 T. Palmer
,, 11 R. Morrison & Co.

**Citrate of Lime—**
Italy, 6 pkgs. Thames S. T & L. Co Ld.

**Copperas—**
Germany, 32 pkgs. B. & N. Wf. Co., Ltd.

**Cream of Tartar—**
Spain, 11 pkgs. W. C. Bacon & Co.
,, 3 Evans, Lescher, & Co.
,, 5 B. & F. Wf. Co., Ltd.
Italy, 23 Howards & Sons
France, 5 Ross & Deering
,, 12 Smith, Abbott, & Co.
,, 19 B. & F. Wf. Co., Ltd.
Holland, 3 ,,
France 1 E. W. Carling & Co.
Holland, 55 Middleton & Co.

**Dyestuffs—**
**Argols**
Italy, 93 pkgs. Thames S. T. & L. Co., Ltd.
,, 121 Ross & Deering
**Cochineal**
Canaries, 7 pkgs. Marshall & French
**Cutch**
Italy, 100 pkgs. Wallace Bros.
**Extracts**
France, 150 pkgs. L. J. Levinstein & Sons
Denmark, 1 J. Sinclair & Son
Newcastle, N.B., 1,173 pkgs. A. J. Humphrey
France, 100 pkgs. B. & F. Wf. Co., Ltd.
**Gambier**
Singapore, 174 pkgs. S. Barrow & Bros, Ltd.
**Indigo**
Holland, 11 chts. Perkins & Homer
E. Indies, 17 L. & I. D. Jt. Co.
,, 17 Elkan & Co.
,, 30 Stansbury & Co.
**Myrabolams**
E. Indies, 385 pkgs. Lucas & Spencer's Wf. Co., Ltd.
**Naphthalene**
Holland, 5 pkgs. M. Benscher
**Orchella**
France, 3 pkgs. G. N. Souratty & Co.
Portugal, 90 Prop. Bull Wf.
**Sumac**
Italy, 100 pkgs. F. Roberts & Co.
,, 100 G. S. N. Co.
**Tanners' Bark**
Jamaica, 2 t. Gillespie Bros & Co.
**Turmeric**
Hong Kong, 100 pkgs. Crosse & Blackwell
,, 163 B. & N. Wf. Co., Ltd
**Valonia**
A. Turkey, 15 t. A. & W. Nesbitt
,, 257 J. Graves
,, 35 Anning & Cobb
,, 25 A. J. Humphrey

**Gamboge—**
Singapore, 6 cs. T. Barlow & Bros.

**Glucose—**
U. States, 1,850 pkgs. 1,850 c. J. Barber & Co.
,, 50 297 c. Prop. Scott's Wf.
,, 200 1,193 N. S. S. Co.
Germany, 25 205 Prop. Chmbln.'s Wf.

U. States, 500 500 L. Norman & Co.
" 50 275 H. Johnson & Sons
" 50 267 W. Balchin
" 125 750 Page, Son, & East
" 1,000 1,000 Barrett, Tagant, & Co.
" 250 250 C. F. Webster & Co.
" 750 750 J. Knill & Co.
Holland, 6 48 "
France, 400 400 L. Norman & Co.
U. States, 3,950 4,707 R. G. Hall & Co.
" 3,050 3,265 Fellows, Morton, & Co.
" 350 1,250 Prop. Chmbln.'s Wf.
" 500 500 Baxter & Hoare

**Glycerine—**
France, £240 Williams, Torrey, & Co., Ltd.
Germany, 62 T. H. Lee
Holland, 110 J. Owen
Dunedin, 180 E. W. Carling & Co.

**Iron Oxide—**
Holland, 212 t. G. J. Steward

**Lead Acetate—**
Germany, 17 pkgs. W. Caudery & Co.

**Magnesium—**
Germany, 5 pkgs. Phillipps & Graves

**Manure—**
Germany, 10 t. R. W. Greeff & Co.
" 51 Union L. Co., Ltd.
Italy, 1 C. Christopherson & Co.
Germany, 10 F. J. Putz & Co.

**Methyl Alcohol—**
Germany, 13 cks. Lister & Biggs

**Ochre—**
France, 32 cks. B. Young

**Painters' Colours—**
Germany, 9 pkgs. L. & I. D. Jt. Co.
" 8 T. H. Lee
France, 24 Flageollet & Co.
U. States, 100 C. Diamond
" 200 brls. M. Ashby, Ld.
Italy, 130 bgs. Soundy & Sons
Holland, 625 cks. "
Holland, 12 Phillipps & Graves
Belgium, 16 T. Palmer
Germany, 20 J. Kitchin, Ld.
" 40 cs. W. J. Pattison & Co.
Sydney, 260 bgs. L. & I. D. Jt. Co.
Germany, 4 2 cs. 1 ck. Phillipps & Graves
Hong Kong, 3 H. W. Grose
Belgium, 4 brls. J. L. Lyon & Co.
Singapore, 27 cs. L. & I. D. Jt. Co.

**Phosphate Rock—**
U. States, 2,100 t. Cloid, Routledge, & Co.
W. I., 323 Forbes, Abbott, & Co.
Belgium, 250 Odams Chemical Manure Co.
Holland, 335 Anglo Contl. G. Wks.

**Pitch—**
France, 53 brls. Poth, Hille, & Co.
Archangel, 265 cks. W. F. Malcolm & Co.

**Plumbago—**
Holland, 17 cks. B. Gallaway
Germany, 22 Le Seuer & Co.

**Potash—**
Germany, 5 pkgs. L. & I. D. Jt. Co.

**Potassium Carbonate—**
France, 40 c. J. A. Reid

**Potassium Oxalate—**
Norway, 27 pkgs. B. & F. Wf. Co., Ltd.

**Potassium Oxymuriate—**
Belgium, 50 pkgs. G. Boor & Co.

**Rosin—**
U. States, 2,350 brls. H. Hill & Sons
" 100 J. H. Usmar & Co.
" 1,022 G. Nutter & Co.
" 3,250 F. & S. Chiesman & Co.
" 200 Prod. Brokers Co.

**Saltpetre—**
Germany, 60 cks. P. Hecker & Co.
E. Indies, 619 bgs. Brown & Elmslie
" 2,547 Ralli Bros.
Germany, 7 cks. Craven & Co.
" 175 P. Hecker & Co.
" 70 T. Merry & Son

**Soda & Potassium Bicarbonate—**
Holland, 35 pkgs. A. & M. Zimmermann

**Sodium Acetate—**
Belgium, 20 pkgs. Leach & Co.
" 13 H. Lorenz
France, 9 S. F. Waters & Co.

**Sodium Hyposulphite—**
Holland, 208 pkgs. R. W. Greeff & Co.

**Sodium Nitrate—**
Germany, 6 pkgs. C. Faust & Co.

**Sodium Sulphate—**
Holland, 10 pkgs. Bowron Bros.

**Sulphur—**
Italy, 17 t. M. D. Co.

**Sulphuric Acid—**
France, 1 pkg. A. Demaret

**Tallow—**
Sydney, 186 cks. Leach & Co.
" 1,017 J. Greig
" 72 Horne & Co.
" 200 Pillow, Jones & Co.
Canada, 4 L. & I. Dk. Co.
Tasmania, 56 Hicks, Nash, & Co.
N. Zealand, 10 N. Z. L. & M. A. Co.
" 28 N. M. & A. Co. of N.Z.
Sydney, 128 Ross & Deering
" 316 Beresford & Co.
" 66 A. B. Curtis & Co.
" 109 Goad, Rigg, & Co.
" 241 A. G. Anderson
U. States, 40 Moore & Hole
Sydney, 13 L. & I. Dk. Co.
Melbourne, 430 Kaul & Haenlein
N. Zealand, 4 R. Brooks & Co.
N. Zealand, 24 Culverwell, Brooks, & Co.
France, 140 sks. J. Goddard & Co.
N. Zealand, 3 L. & I. Dk. Co.
" 52 A. Tremearne & Co.
Sydney, 9 Hicks, Nash, & Co.
" 71 Dangar, Grant, & Co.
Belgium, 2 Union L. Co., Ltd.
" 18 H. Hill & Sons
Sydney, 26 J. Morrison & Co.
U. States, 61 Mordaunt Bros.

**Tar—**
N. Russia, 1,199 brls. W. F. Malcolm & Co.

**Tartaric Acid—**
France, 40 pkgs. B. & F. Wf. Co., Ltd.
Holland, 32 "
" 4 C. Christopherson & Co.
" 22 Middleton & Co.

**Turpentine—**
N. Russia, 52 brls. F. & S. Chiesman & Co.
Savannah, 5,832 Nicholl & Knight

**Ultramarine—**
Germany, 10 cs. G. Steinhoff
Holland, 2 cks. Haeffner, Hilpert, & Co.
Germany, 3 H. Lambert
Belgium, 24 Arnati & Harrison

**Varnish—**
Belgium, 7 pkgs. Stobbs, Wilson, & Co.
France, 12 Flageollet & Co.

**White Lead—**
Holland, 18 cks. Burrell & Co.
Germany, 46 Elkan & Co.
" 13 Spies Bros. & Co.
" 4 Haeffner, Hilpert, & Co.
" 22 Petri Bros.
Holland, 10 T. T. Creed
" 40 A. & M. Zimmermann
" 18 S. H. Willoughby
France, 11 J. Watt & Son
Germany, 11 H. Lambert
" 44 Colthurst & Harding
Belgium, 33 brls. F. & W. Farmiloe
" 20 J. L. Lyon & Co.

**Zinc Ashes—**
Melbourne, 12 t. C. Tennant, Sons, & Co.

**Zinc Oxide—**
Holland, 150 brls. M. Ashby, Ltd.
U. States, 100 "
Holland, 25 Little & Johnson

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## LIVERPOOL.

*Week ending July 28th.*

**Barytes—**
Antwerp, 10 cks.

**Boracic Acid—**
Hamburg, 10 brls.

**Borax—**
Amsterdam, 1 ck.
Antwerp, 15

**Caoutchouc—**
Havre, 1,700 pkgs. Cunard S. S. Co., Ld.

**Chemicals** *(otherwise undescribed)*
Hamburg, 5 cs.

**Colours—**
Antwerp, 6 cks. 6 brls. J. T. Fletcher & Co.
" 1 brl.
Rotterdam, 16 10 cs.
Hamburg, 5

**Dyestuffs—**
**Algorabilla**
Valparaiso, 930 bgs
**Aniline Dye**
Hamburg, 1 cs. Larrinaga & Co.
**Argols**
Patras, 9 cs. M. D. Frangopulo & Co.
Oporto, 25 cks. German Bank of London
Bordeaux, 42 cks.
**Divi Divi**
Hamburg, 188 bgs.
**Extracts**
Bordeaux, 100 cks.
**Madder**
Rotterdam, 1 ck.
**Saffron**
Valencia, 1 cs.
**Sumac**
Trieste, 75 bgs. N. W. Jackson
Barcelona, 40 A. Ruffer & Sons
" 50
**Valonia**
Smyrna, 173 bgs. Schweder & Co.
" 100 t. Essayen, Shaum & Co.
" 100

**Farina—**
Fiume, 40 sks.

**French Chalk—**
Rouen, 4 cs. Co-op. W sale. Society, Ltd.

**Glucose—**
New York, 100 brls. T. M. Duche & Sons
" 300

**Glycerine—**
Hamburg, 5 cs.

**Lime—**
New York, 500 bgs.

**Manganese—**
Oporto, 110 t. Mac Queen Bros.

**Mineral White—**
Trieste, 100 bgs. V. Pazze

**Paint—**
Baltimore, 10 brls.

**Paraffin Wax—**
New York, 200 cs. Thompson & Bedford

**Phosphate—**
Fernandina, 1,465 t. Wyllie & Gordon
Montreal, 400

**Phosphate of Lime—**
Treport, 456,800 kilos.

**Phosphate Rock—**
Brunswick, 1,938 t.

**Pitch—**
Amsterdam, 14 cks.

**Potash—**
Montreal, 15 brls.
Rouen, 50 cks. Co-op. W'sale. Society, Ltd.

**Potassium Prussiate—**
Rotterdam, 9 cks.

**Pyrites—**
Huelva, 3,010 t. Tennants & Co.
" 6,512 Matheson & Co.

**Rosin—**
Wilmington, N C., 688 brls.

**Saltpetre—**
Hamburg, 20 kgs.

**Soap—**
Corfu, 1 bx. A. Belleli
Patras, 302½ cs. G. H. Holden
" 119½
M. Video, 10 Galloway, Scheider, & Co.

**Soapstone—**
Bordeaux, 200 bgs. G. G. Blackwell
" 200

**Stearine—**
Rotterdam, 3 cks.
Antwerp, 58 bgs.

**Tallow—**
Rouen, 30 cks. R. J. Francis & Co.
Boston, 50 hds.
Rouen, 138 bgs. Co-op. W'sale. Society, Ltd.
New York, 160 tcs. 150 hds.

**Tar—**
Wilmington, N.C., 2,315 brls.

**Tartar—**
Bordeaux, 29 cks.

**Tartar Emetic—**
Hamburg, 1 ck.

**Tartaric Acid—**
Rotterdam, 20 kgs. 12 cks.

**Tincal—**
Calcutta, 257 bgs.

**Turpentine—**
Hamburg, 1 bx.

**Ultramarine—**
Rotterdam, 4 cks. 33 cs.
Hamburg, 4 50
In transit, 95

**Varnish—**
Havre, 1 cs. Cunard Co.
Hamburg, 1

**Verdigris—**
Bordeaux, 2 cks.

**White Lead—**
Rotterdam, 22 cks.

**Zinc Ashes—**
Bordeaux, 323 bgs.
Antwerp, 7 cks. J. T. F

**Zinc Oxide—**
Antwerp, 50 brls. J. T. F
" 155
Rotterdam, 90 cks.

**Zinc Sulphate—**
Rotterdam, 5 brls.

**Zinc White—**
Amsterdam, 15 cks.
Rotterdam, 100 O. H.

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## HULL.

*Week ending July 30th.*

**Acetic Acid—**
Rotterdam, 5 btls. Hutchinson

**Acid—**
Rotterdam, 12 blns. W. & C. L.

**Barytes—**
Antwerp, 10 cks. Bailey & Le
Rotterdam, 24 Hanger, Wa
" 124 Blundell, Spence
Bremen, 22

**Chemicals** *(otherwise undescr*
Copenhagen, 17 pks. Wilson, S
Gothenburg, 2 cs. "
Bremen, 3 cks. Veltman
Dunkirk, 31 pkgs. Wilson,
Hamburg, 13 pks. "
Antwerp, 35 "

**Colours—**
Rotterdam, 15 brls 1 ck. 9 pks. G. Lawson
Hamburg, 2 cs. 2 G. Ma
Rotterdam, 1 J. Pyefin
Bremen, 4 Veltman
" 4 J. Pyefin
Rouen, 12
Flushing, 4 1 211 pks. Zeeland S
Rotterdam, 6 Hutchinson
Riga, 50 Wilson,
Antwerp, 42
Konigsberg, 1
Ghent, 11 "
Rotterdam, 20 6 55 pks. C. L.

**Dyestuffs—**
**Alizarine**
Rotterdam, 25 brls. G. Lawson
" 60 cks. W. & C.
**Aniline**
Flushing, 1 ck. Zeeland S
**Madder**
Rotterdam, 1 ck. Hutchinson
**Myrabolams**
Bombay, 2,368 bgs.
Hamburg, 645 Wilson, Son
**Sumac**
Trieste, 6 bgs. 15 bls. Sons, &
Palermo, 720 "
" 1,000

—
200 bgs. Wilson, Sons, & Co., Ld.
162 cs. ,,

—
ork, 100 brls. Wilson, Sons, & Co., Ld.
158

ne—
rg, 3 pkgs.

cide—
57 brls.

a—
rg, 5 cks. Wilson, Sons, & Co., Ld.

ania, 5 cs. Wilson, Sons, & Co., Ld.

rg, 57 brls.

—
dam, 2 cks. G Lawson & Sons

—
ger, 1 cs. Wilson, Sons, & Co., Ld.

ah, 825 brls. G. & J. Rawstorn

re—
rg, 5 kgs. C. M. Lofthouse & Co.

110 cs. Wilson, Sons, & Co., Ld.

dam, 8 cks. W. & C. L. Ringrose

e—
dam, 30 bgs. Wilson, Sons, & Co., Ld.

r—
, 580 pks. Wilson, Sons, & Co., Ld.

ersburg, 5 cks. Wilson, Sons, & Co., Ld.
rg, 703 brls. 200 hf.-brls. J. Good & Sons

**Tartar—**
Bari, 15 cks. Wilson, Sons, & Co., Ld.

**Tartaric Acid—**
Rotterdam, 2 cks. G. Lawson & Sons
,, 7 Hutchinson & Son
,, 1 W. & C. L. Ringrose

**Turpentine—**
Savannah, 1,869 brls. G. & J. Rawstorn

**Ultramarine—**
Rotterdam, 5 cks. Hutchinson & Son

**Varnish—**
Gothenburg, 1 cs. Wilson, Sons, & Co., Ld.

**White Lead—**
Antwerp, 37 cks. Bailey & Leetham
Rotterdam, 19
,, 16 Hanger, Watson, & Harris
,, 5 J. T. Seddon
,, 9 T. F. Chambers & Co.

## GLASGOW.

*Week ending August 4th.*

**Alkali—**
Antwerp, 4 cks.

**Aluminium—**
Antwerp, 1 case.

**Antimony Salt—**
Rotterdam, 1 ck. J. Rankine & Son

**Barium Chloride—**
Rotterdam, 3 cks. J. Rankine & Son

**Barytes—**
Rotterdam, 92 cks.

**Colours—**
Rotterdam, 6 cks. 2 cs. J. Rankine & Son
,, 20 G & J. Boyd

**Dyestuffs—**
**Alizarine**
Rotterdam, 85 cks.
**Extracts**
Antwerp, 9 cks.
**Indigo**
Rotterdam, 15 chts. J. Rankine & Son
**Madder**
Bordeaux, 7 cks. J. & P. Hutchinson

**Glycerine—**
Rotterdam, 4 tins. 1 cs. J. Rankine & Son

**Painters' Colours—**
Antwerp, 2 cks.

**Pyrites—**
Huelva, 1,541 t. Tharsis Co.

**Saltpetre—**
Hamburg, 12 cks.

**Soap—**
Philadelphia, 18 bkts.
Quebec, 1 cs.

**Tartar—**
Bordeaux, 18 cks.
Oporto, 2

**Tartaric Acid—**
Rotterdam, 3 cks. J. Rankine & Son

**Waste Salt—**
Hamburg, 3,055 bgs.

**White Lead—**
Rotterdam, 127 cks.

**Zinc Oxide—**
Antwerp, 100 cks.
Hamburg, 50

## TYNE.

*Week ending July 30th.*

**Antimony—**
Hamburg, 1,045 cs. Tyne S. S. Co.

**Barium—**
Antwerp, 1,220 bgs. Tyne S. S. Co.

**Barytes—**
Antwerp, 83 cks. Tyne S. S. Co.

**Farina—**
Hamburg, 25 bgs. Tyne S. S. Co.

**Salt—**
Hamburg, 280 t.

**Saltpetre—**
Hamburg, 10 cks. Tyne S. S. Co.

**Sulphur—**
Huelva, 33 t. 10 c.

**Ultramarine—**
Rotterdam, 20 cs. Tyne S. S. Co.
Hamburg, 20 cks. ,,

## GOOLE.

*Week ending July 13th.*

**Alum—**
Rotterdam, 19 cks.

**Ammonium Acetate—**
Rotterdam, 1 ck.

**Antimony—**
Boulogne, 1 ck.

**Caoutchouc—**
Boulogne, 1 cs. 5 cks.

**Caustic Potash—**
Calais, 20 dms.

**Copper Pyrites—**
Huelva, 2,490 t.

**Dyestuffs** (*otherwise undescribed.*)
Boulogne, 29 cks. 34 cs.

**Extracts—**
Rotterdam, 11 brls.

**Phosphate—**
Ghent, 816 bgs.

**Saltpetre—**
Rotterdam, 100 bgs.

**Tar Oil—**
Ghent, 25 cks.

**Waste Salt—**
Rouen, 42 cks.
Hamburg, 508 bgs. 271 t.

**Zinc Oxide—**
Antwerp, 25 brls.

**Zinc Sulphate—**
Rotterdam, 5 brls.

## GRIMSBY.

*Week ending July 18th.*

**Caoutchouc—**
Hamburg, 233 pkgs.

**Chemicals** (*otherwise undescribed*)
Hamburg, 10 pkgs.
Antwerp, 28 cks.

**Dyestuffs** (*otherwise undescribed*)
Dieppe, 40 cks.

**Zinc Ashes—**
Antwerp, 19 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*ek ending August 3rd.*

**e of Lime—**
, 1 t. £12

—
d, 7 cs. £34
ore, 12 drs. 14
hee, 1 20

—
rt, 1 t. £7

**nium Carbonate—**
al, 1 t. 2 c. £28
2 cs. 8

—
don, 1 cs. £8
, 3 t. 150

**Acid—**
Bay, 5 cks. £10

**e Soda—**
don, 17 c. £15
1 t. 5 49
nd, 10 102
elphia, 30 327
Bay, 10 13
zabeth, 5 8

**tals** (*otherwise undescribed*)
Bay, 3 cs. £11
rne, 2 pkgs. 10
, 2 22
de, 34 82
al, 13 26 92
der, 9 c. 29

**Chloride of Lime—**
Trinidad, 1 t. 7 c. £18

**Citric Acid—**
Barcelona, 4 cks. £159
Valparaiso, 2 kgs. 17
Gisborne, 1 10
Hamburg, 6 c. 46
Christiania, 5 40
Hobart, 1 8
Boulogne, 1 8
Rotterdam, 5 40
Genoa, 6 48
Montreal, 1 8
Rosario, 2 15
St. Petersburg, 7 t. 10 20 cks. 10 kgs. £2,014

**Coal Products—**
**Aniline**
Wellington, 6 cs. £20
**Benzol**
Rotterdam, 24 drs. £328
**Coal Tar Dyes**
Boston, 1 ck. 84
**Naphtha**
Treport, 24 cks. £47
**Naphthalene**
Konigsberg, 13 cks. £23
Hamburg, 2 29
Amsterdam, 26 41
**Paraffin Wax**
Auckland, 3 tks. £156
E. London, 44 cs. 311
**Pitch**
Antwerp, 148 t. £207
Salonica, 100 brls. 40
Boston, 584 cks. 300
Constantinople, 150 60
New York, 1,504 680
Dunedin, 3 cs. 18
**Tar**
Danzig, 250 brls. £110
Boston, 237 cks. 130
Galatz, 50 rmlts. 24
Stockholm, 50 36
Gothenburg, 50 36

**Coal Products** (*otherwise undesc'd.*)
Sydney, 25 brls. £25

**Copper Sulphate—**
Treport, 12 c. £10
Fremantle, 2 t. 18 40

**Cream of Tartar—**
Cossack, 2 c. £11
Melbourne, 1 t. 85
Brisbane, 1 10 136
Sydney, 2 185

**Disinfectants—**
Trinidad, 15 pkgs. £28
Montreal, 3 cs. 30
Sydney, 11 46
Melbourne, 10 25 74

**Manure—**
Auckland, 85 t. 313
Mauritius, 8 17 c. 220
Natal, 20 45
Barcelona, 59 472
Gothenburg, 58 9 122
Hamburg, 250 2,625
Falmouth, Jam., 2 22
Greifswald, 123 505
Colberg, 187 760
Newfairwater, 113 5 470
Demerara, 40 390

**Picric Acid—**
Melbourne, 12 c. £60

**Potash—**
Sydney, 5 c. £16
Calcutta, 20 cs. 100

**Saltpetre—**
Melbourne, 2 t. £44
Rio de Janeiro, 11 10 c. £257

**Sheep Dip—**
Treport, 25 cks. £27
Natal, 1,000 drs. 203
M. Video, 200 cs. 600

**Soda Ash—**
Wellington, 5 t. 1 c. £32
Auckland, 10 64

**Soda Crystals—**
Natal, 10 c. £3
Hong Kong, 19 4

**Sodium Acetate—**
Sydney, 19 c. £16
Montreal, 11 10

**Sodium Bicarbonate—**
Trinidad, 1 t. £8
Otago, 5 c. £6
Natal, 10 4
Invercargill, 1 5 10
Townsville, 10 4
San Francisco, 5 11
Sydney, 6 6
Lyttleton, 2 10 18
Bombay, 5 33

**Sodium Carbonate—**
Natal, 1 t. 13 c. £14
**Sodium Hyposulphite—**
Montreal, 11 c. £6
**Strontian Nitrate—**
New York, 5 t. 2 c £144
**Sub-Nitrate of Bismuth—**
Montreal, 1 c. £35
**Sulphur—**
E. London, 80 kgs. £50
Algoa Bay, 25 8
**Sulphuric Acid—**
Algoa Bay, 100 drs. £140
**Superphosphate—**
Auckland, 50 t. £200
**Tartaric Acid—**
Gisborne, 1 kg. £7
Auckland, 5 c. 30
Newcastle, 3 16
Brisbane, 10 58
Melbourne, 1 t. 10 157

## LIVERPOOL.

*Week ending August 3rd.*

**Alum—**
Oran, 2 t. 10 c. £15
Talcahuano, 15 5
Montreal, 7 9 38
B. Ayres, 5 4 27
Rodatz, 3 10 17
**Alum Cake—**
Havana, 4 t. 13 c. £22
**Aluminoferric Cake—**
San Francisco, 5 t. 11 c. £17
Calcutta, 12 10 3 q. 46
Cochin, 3 17 3 13
**Ammonium Carbonate—**
Antwerp, 10 c. £16
Bordeaux, 1 t. 6 38
Genoa, 28
Hamburg, 10 1 q. 17
B. Ayres, 5 cs. 18
Naples, 1 1 23
Marseilles, 4 1 6
**Ammonium Chloride—**
Boston, 3 t. 9 c. £87
Philadelphia, 15 5 3 q. 326
Calamata, 3 5
Piræus, 3 5
San Francisco, 1 8 37
Bilbao, 2 4
Galatz, 19 2 33
Genoa, 1 33
Syra, 4 7
Patras, 3 1 6
Larnaca, 2 3 5
Rotterdam, 4 3 3 74
**Ammonium Sulphate—**
Barcelona, 50 t. £500
Malaga, 30 8 c. 330
Las Palmas, 26 2 286
Piræus, 2 10 12
Valencia, 49 10 500
Tegul, 102 1 2 1,020
Grand Canary, 21 19 3 226
Demerara, 14 18 162
**Amorphous Phosphorus—**
Hiogo, 6 t. 15 c. 3 q. £330
**Aniline Salts—**
Barcelona, 3 t. 10 c. 1 q. £220
**Anthracene—**
Rotterdam, 55 t. £1,250
**Bleaching Powder—**
Boston, 443 cks.
Philadelphia, 43
Bilbao, 163
Bombay, 99 cs.
Constantinople, 1
Genoa, 39
New York, 100 brls.
**Borax—**
Genoa, 1 t. £29
Hamburg, 5 6 c 4 q. 164
Nantes, 1 2 30
Piræus, 3 1 5
**Calcined Magnesia—**
Constantinople, 1 q. £26
**Carbolic Acid—**
Genoa, 11 c. £23
Odessa, 5 t. 2 3 170
Baltimore, 23 cs. 169
Trieste, 9 18 2 500
Shanghai, 2 5 dms. 14
**Caustic Soda—**
Adelaide, 90 dms.
Bari, 127
Beyrout, 100
Bombay, 28
Boston, 100 50 brls.
Brindisi, 36
Brisbane, 30
Coquimbo, 40
Fiume, 30
Genoa, 36
Gothenburg, 5
Hamburg, 75
Havana, 30 20 kgs
Honolulu, 10
Hiogo, 100
Kobe, 100
Leghorn, 120
Madrid, 80
Melbourne, 36
Naples, 87
New York, 688
Odessa, 30
Para, 22
Rangoon, 29
Rio de Janeiro, 20
St. John's, Nfld., 6 bxs.
,, Petersburg, 30
Salonica, 15
San Sebastian, 80
Santander, 50
Savanilla, 20
Seville, 200 kg
Sydney, 45
Valparaiso, 50
Ancona, 142
Barcelona, 120
Buenos Ayres, 20
Vigo, 20
**Chemicals** (*otherwise undescribed*)
Alexandria, 1 t. £33
Philadelphia, 28 2 c. 562
**Chloride of Lime—**
New York, 52 t. 7 c. £426
**Cobalt Oxide—**
Gijon, 3 q. £45
**Colours—**
Montreal, 2 cks.
Boston, 1 bx.
Rio de Janeiro, 1 cs.
**Cooper Sulphate—**
Talcahuano, 10 c. £8
Amsterdam, 4 18 1 q. 75
Bordeaux, 30 2 470
Ghent, 5 4 79
Venice, 5 7 2 84
Barcelona, 5 3 2 77
Leghorn, 3 2 1 47
Alexandretta, 14 2 11
Rodosto, 5 4
Cadiz, 10 8
Naples, 3 6 3 53
M. Video, 4 8 5 67
Rouen, 5 75
Algiers, 5 1 70
Genoa, 6 7 95
**Cream of Tartar—**
Monteal, 10 c. 2 q. £45
**Disinfectants—**
Calcutta, 2 t. 6 c. 1 q. £27
**Glycerine—**
Bilbao, 10 t. £250
Rotterdam, 15 17 c. 331
**Guano—**
Sourabaya, 100 t. 1 c. £923
**Gypsum—**
New York, 36 t. 6 c. £133
**Manganese—**
Hong Kong, 10 kgs.
Antwerp, 50 t.
New York. 52 cks.
**Magnesium Citrate—**
Monte Video, 5 cs.
**Manure—**
Bordeaux, 30 t. 4 c. £221
St. Nazaire, 500 4 2,553
Havre, 128 16 1 613
**Nitro-Benzene—**
Malta, 3 c. £11
**Paint—**
Alexandria, 160 kgs.
Bathurst, 20
Cienfuegos, 3 cks.
Galatz, 2 300
Ibrail, 7
Jaffa, 1
Malta, 4 dms
Piræus, 3
Port Limon, 10
,, Natal, 12
Santa Marta, 9 cks.
Smyrna, 150
Talcahuano, 8
Trieste, 50 6
Antwerp, 10
Callao, 8
Linea de Conception, 40
New York, 1 brl. 6 cs.
Penang, 9 pkgs.
Seville, 20
Sierra Leone, 290
Valparaiso, 6 7 dms. 1 cs.
Vigo, 11
**Painters' Colours—**
Beyrout, 50 kgs. 1 brl.
Boston, 20 3 cks.
Capetown, 11 cs.
Colombo, 20 dms.
Melbourne, 40
Oporto, 2 brls.
Porto Alegre, 10
St. John's, Nfld., 183 22 1 cs. 2
,, Louis, 11 cs. 10 dms.
San Francisco, 34
Valparaiso, 5 cs. 350 10
Abonnema, 6 kgs. 3
Calcutta, 9
Gothenburg, 100 bgs.
Leghorn, 24
Lisbon, 1 bx. 10
Montreal, 8 5
New York, 300 brls.
Odessa, 20
Rio Grande, 1 16 cs.
Rotterdam, 2
San Sebastian, 42
Yokohama, 20
**Potassium Bichromate—**
Lisbon, 7 c. £15
**Potassium Chlorate—**
St John's, N.B., 2 c. £7
Hiogo, 8 t. 10 408
New York, 8 19 3 q. 537
Vera Cruz, 18 1 57
Philadelphia, 2 10 120
Lisbon, 1 50
Leghorn, 17 49
Hamburg, 1 10 80
Oporto, 10 30
St. Petersburg, 13 633
Rotterdam, 10 30
Boston, 5 248
Naples, 3 10 178
Shanghai, 5 14 4 375
Odessa, 4 10
**Potassium Prussiate—**
Montreal, 3 c. £13
**Potassium Silicate—**
Valencia, 8 t. 9 c. 2 q. £54
**Phosphate of Lime—**
New York, 10 c. £8
**Phosphorus—**
Havana, 8 c. 2 q. £140
Hiogo, 6 2 100
Shanghai, 5 10
**Salt—**
Akassa, 400 t.
Boca, 5
Calcutta, 10,896
C. C. Castle, 5
Iceland, 325
Mauritius, 317
Montreal, 100 1,901 sks.
Newport News, 560
Port Natal, 150
Rio de Janeiro, 10 c.
Rotterdam, 254
Sandheads, 2,364
Shanghai, 50 cs. 8
Antwerp, 170
Bakana, 15
Chatham, 236¼
Chicago, 50
E. London, 173¾
Ghent, 120
Las Palmas, 5
Montreal, 596½
San Francisco, 299¾
**Salt Cake—**
Philadelphia, 10 t. 10 c. £262
Baltimore, 200 3 456
**Saltpetre—**
Rio de Janeiro, 10 c. 2 q. £12
Ceara, 6 10 1 241
Natal, 1 8 2 32
Porto Alegre, 10 13
Para, 2 10 56
Maranham, 5 2 7
**Sheep Dip—**
B. Ayres, 200 cs. 1 t. 2 c. £1,561
**Soap—**
Accra, 156 bxs.
Alexandria, 89 100 brls.
Algoa Bay, 4,040 228 cs.
Antwerp, 6 400
Attoaba, 18
Barbadoes, 100 600
Bayin, 50 40
Bombay, 575 54
Bordeaux, 1,000
Cairo, 10 dms.
C. C. Castle, 90 2
Capetown, 3,150
Cunana, 493
Durban, 337
Ghent, 10
Gibraltar, 810
Jersey, 25
Kingston, 1,050
Lagos, 36
Las Palmas, 900
New York, 800 1 ct.
Para, 100
Philadelphia, 1
Port Natal, 325
Rotterdam,
St. Antonio, 100
,, Johns, Nfld., 160
Sav la Mar, 293
Sierra Leone, 186
Singapore, 200
Smyrna,
Teneriffe, 4
Trieste,
Trinidad, 1,134
Addah, 20
Akassa, 37
Amsterdam, 50
Bay Beach, 30
Benin, 100
Calcutta,
Constantinople, 300
E. London, 1,200
Genoa, 150
Gr. Canary, 440
Hamburg, 30 dms.
Larache, 348
Lisbon, 4 cks.
Lucia, 100
Penang, 1
Port Elizabeth, 425
Quittah, 20
Rangoon,
Rouen, 19 cks.
Salaora, 3
San Fernando, 200
Shanghai, 600
Warre, 100
**Soda—**
Algoa Bay, 28 bxs. 15 cs.
Capetown, 20 brls.
Catania, 20
Chicago,
Constantinople, 6
Genoa, 85
Gibraltar, 25
Amsterdam,
Beyrout, 56 cks.
Bilbao, 8 30 kgs.
Corfu, 15
Hamburg, 12
Montreal, 28
**Soda Alkali—**
Galatz, 20 brls.
Leghorn, 40 b
New York, 60
**Soda Ash—**
Adelaide, 4 cks. 4 brl
Ancona, 2
Beyrout, 20
Bombay, 62
Cadiz, 23
East St. Louis, 168
Hiogo, 15
Kurrachee, 44
Lisbon, 10
Naples, 30
N. York, 1,363 950 bgs.
Para, 14 brls
Salonica, 100
Smyrna, 180 200
Yokohama, 133
Baltimore, 249 1,120 bgs.
Boston, 547 1,602
Brisbane, 202
B. Ayres,
Calcutta, 20
Cartagena,
Montreal, 200
**Soda Crystals—**
Bombay, 250 kgs.
Hong Kong, 50 brls.
Newcastle, 100
New York, 1,678
Smyrna, 50
Sourabaya, 50 cks.
Toronto, 50 bgs.
Halifax, 25 kgs.
Montreal, 100
**Sodium Biborate—**
Rotterdam, 1 t. 2 c. 1
Hamburg, 20 9 6
**Sodium Bichromate—**
Syra, 14 c. 1
**Sodium Bicarbonate—**
Ancona, 24 kgs.
Antwerp, 140 16 cks.
Bari, 55 19

Bombay, 352
Bordeaux, 70
Buenos Ayres, 50
Galatz, 16
Genoa, 50 12
Singapore, 13
Adelaide, 195 45
Amsterdam, 30
Brisbane, 150
Calcutta, 20
Constantinople, 8
Copenhagen, 135
Halifax, 40
Montreal, 145

**Sodium Carbonate—**
Buenos Ayres, 3 cs. £20
Valparaiso, 3
Boston, 84 brls.

**Sodium Silicate—**
Barcelona, 70 brls.
Bombay, 1
Leghorn, 8 cks.
Oporto, 18

**Sodium Sulphate—**
Montreal, 1 t. 2 c. £3
Valencia, 17 18 1 q. 55

**Sulphur—**
Pernambuco, 19 c. 2 q. £8
St. Nazaire, 120 t. 640
Ghent, 5 24
Montreal, 250 1 1,313
Natal, 13 2 6
St. John's, N.B., 7 16 1 48
Kurrachee, 2 2 15
Calcutta, 6 4 36
Boston, 160 4 831
Demerara, 14 10 3 98

**Sulphuric Acid—**
M. Video, 1 t. 10 c. £16
Bombay, 16 9

**Superphosphate of Lime—**
Valencia, 40 t. £108
Hamburg, 120 2 c. 2 q. 357

**Tallow—**
Sourabaya, 5 cks.
Alexandria, 20 brls.
Bilbao, 10

**Tar—**
Akassa, 30 brls.
Ibrail, 25
Port Natal, 10

**Tartaric Acid—**
Talcahuano, 2 c. £12

**Varnish—**
New York, 20 cs. 4 cks.
Bangkok, 2
Bombay, 10

**White Lead—**
B. Ayres, 15 cks.

**Zinc Chloride—**
Bombay, 2 t. 6 c. 3 q. £35

## HULL.

*Week ending July 30th.*

**Alkali—**
Harlingen, 57 cks.

**Aluminium—**
Hamburg, 2 cs.

**Bleaching Powder—**
Stettin, 141 cks.

**Chemicals** *(otherwise undescribed)*
Antwerp, 6 cs. 2 cks.
Amsterdam, 17
Abo, 3
Christiania, 1,608 slbs.
Copenhagen, 3 2 pks.
Drontheim, 324
Gothenburg, 60 24
Hamburg, 197 82 8
Helsingfors, 24
Konigsberg, 5 kgs.
Libau, 25 100 btls. 10
Marseilles, 1
New York, 5
Naples, 20
Rotterdam, 56
Reval, 35
Rouen, 7
Stettin, 5 14 pks.
St. Petersburg, 593 30 pkgs. 24 cs.

**Caustic Soda—**
Abo, 40 dms. 2 cks.
Hamburg, 1
Helsingfors, 32 6 kgs.
Libau, 35
Reval, 200 25
Stettin, 35

**Cottonseed Oil—**
Antwerp, 370 c.
Amsterdam, 236
Flushing, 100
Hamburg, 748
Marseilles, 85
Rotterdam, 985

**Creosote—**
Copenhagen, 10 cks.

**Dyestuffs** *(otherwise undescribed)*
Antwerp, 1 ck.
Christiania, 12 bgs.
Hamburg, 8
Rotterdam, 2
Stettin, 181 bgs.

**Gypsum—**
New York, 120 cks.

**Linseed Oil—**
Antwerp, 14 c.
Bremen, 174
Bergen, 41
Christiania, 582
Copenhagen, 38
Drontheim, 17
Genoa, 11
Hamburg, 17
Helsingfors, 251
Stavanger, 20

**Manure—**
Hamburg, 26 t.
Marseilles, 20
Stettin, 101

**Mineral White—**
Hamburg, 1 ck.
Rotterdam, 100 bgs.

**Naphtha—**
Copenhagen, 15 cks.

**Naphthalene—**
Libau, 50 bls.

**Painters' Colours—**
Antwerp, 40 cks. 1 pkg.
Amsterdam, 51
Abo, 2
Bremen, 1 cs.
Bergen, 3
Bordeaux, 3
Christiania, 2 16 dms.
Copenhagen, 5 9 pks.
Dunkirk, 1
Gothenburg, 24
Genoa, 28
Hamburg, 1 26
Konigsberg, 42
Leghorn, 19
Marseilles, 7
New York, 75 50 kgs.
Naples, 14
Rotterdam, 28 3
Rouen, 1 11
Stettin, 17
St. Petersburg, 150
Uleaborg, 11 2
Wasa, 4

**Paraffin Wax—**
Harlingen, 4 cs.

**Pitch—**
Antwerp, 395 t.

**Soap—**
Christiania, 1 cs.
Hamburg, 1
Helsingfors, 22

**Tallow—**
Abo, 7 cks.

**Tar—**
Christiania, 10 cks.
Hamburg, 13
Libau, 1

**Turpentine—**
Genoa, 1 dm.

**Varnish—**
Antwerp, 2 cs.
Amsterdam, 13 cks.
Gothenburg, 4
Ghent, 3
Hamburg, 2 3 dms.
Reval, 1
St. Petersburg, 1
Uleaborg, 2

## GLASGOW.

*Week ending August 4th.*

**Ammonium Sulphate—**
Barbadoes, 25 t. 12½ c. £260
New York, 2 4 25

**Asbestos—**
China, 3 c. £55

**Benzol—**
Rotterdam, 9 dms. £93

**Bleaching Powder—**
Melbourne, 7 t. 8 c. £50

**Bichrome—**
Rouen, 5 t. 6 c. £211
Antwerp, 12 2¼ 429

**Boracic Acid—**
Stockholm, 1 ck. £6

**Colours—**
Antwerp, 13 c. £38

**Creosote—**
St. Malo, 480 brls. £4,860

**Dried Blood—**
Rouen, 8 t. 17 c.

**Dyestuffs—**
**Sumac**
Melbourne, 3 t. 15½ c. £40
**Valonia**
Melbourne, 10 t. 10 c. £165

**Glucose—**
Cape Colony, 1 t. 11 c. £20

**Linseed Oil—**
Penang, 300 galls. £36. 11s.
Montreal, 4 t. 6¼ c. £85

**Magnesium Sulphate**
Christiania, 2 t. 10 c. £15

**Manure—**
Rouen, £63

**Nitrate of Lead—**
Quebec, 2 t. 4¼ c. £39

**Paint—**
Penang, 2 t. 15 c. £33
Japan, 3½ 74
Demerara, 1 2 £21 16s.

**Painters' Colours—**
Singapore, 13 t. 9 c. £157
Constantinople, 2 7½ 44
Chili, 61 7¾ 1,109

**Paraffin Wax—**
Japan, 21 t. 1¾ c. £515
" 647
Constantinople, 5 18½ 156
Batoum, 16 3 475
Rouen, 2 19½ 85

**Pitch—**
Chili, 7 t. 7 c. £20

**Potassium Bichromate—**
Gothenburg, 5 t. 7¼ c. £220

**Potassium Prussiate—**
Rouen, 5 t. 18 c. £328

**Rosin Oil—**
Christiania, 5 brls. £12
Stockholm, 5 12

**Sheep Dip—**
Chili, 3 t. 10 c. £108

**Soap—**
Antwerp, 8 c. £18

**Sodium Bichromate—**
Gothenburg, 1 t. 6½ c. £48
Rouen, 10 4½ 250
Rotterdam, 2 cks. 18

**Tallow—**
Rotterdam, 10 t. 5½ c. £275

## TYNE.

*Week ending July 30th.*

**Alkali—**
Hamburg, 13 t. 15 c.
Genoa, 3 1
Antwerp, 3 17
Rotterdam, 6 17
Riga, 6 15
Odessa, 2 15
Gothenburg, 10 10

**Alum Cake—**
Horsens, 15 t. 15 c.
Copenhagen, 15 9

**Alumina Sulphate—**
New York, 10 t. 5 c.

**Arsenic—**
Genoa, 1 t. 2 c.

**Asbestos—**
Christiania, 1 t. 10 c.

**Barium Binoxide—**
New York, 2 t.

**Barytes Carbonate—**
Hamburg, 51 t. 7 c.

**Bleaching Powder—**
Hamburg, 14 t.
Antwerp, 44 2 c.
Rotterdam, 4 18
Aalborg, 8 18
Riga, 29 19
Copenhagen, 48
Gothenburg, 4 18

**Caustic Soda—**
Hamburg, 38 t. 3 c.
Genoa, 14 15
Christiania, 10 3
Valencia, 6
New York, 82 19
Copenhagen, 15
Odessa, 14 10

**Colours—**
Genoa, 19 c.
Tromsoe, 2 t.
Copenhagen, 5 1

**Copperas—**
Copenhagen, 7 t. 3 c.

**Creosote—**
Aalborg, 7 c.

**Farina—**
Bergen, 1 t.

**Gypsum—**
New York, 37 t.

**Litharge—**
Christiania, 1 t. 7 c.
Riga, 9 15

**Manure—**
Savona, 207 t.

**Oxalic Acid—**
Genoa, 1 t. 7 c.

**Paint—**
Hamburg, 1 c.
New York, 14 t. 7
Bergen, 6
Christiansund, 4

**Soda—**
Hamburg, 2 t. 3 c.
Antwerp, 2 12
Bremerhaven, 7 18

**Soda Ash—**
Hamburg, 10 t. 1 c.
Genoa, 5 12
Antwerp, 16 3
Aalborg, 3 7
Drontheim, 6 11
Gothenburg, 21 13

**Sodium Hyposulphite—**
Genoa, 1 c.

**Sodium Nitrate—**
Gothenburg, 19 c.

**Sulphur—**
Antwerp, 20 t. 2 c.
Christiania, 25
Rotterdam, 22

**Superphosphate—**
Riga, 68 t. 14 c.
Memel, 500

**Tar—**
Aalborg, 4 c.

**White Lead—**
Copenhagen, 2 t. 17 c.
Gothenburg, 2 14

## GOOLE.

*Week ending July 13th.*

**Alkali—**
Dunkirk, 30 dms.

**Chemicals** *(otherwise undescribed)*
Ghent, 2 cks.

**Coal Products** *(otherwise undesc'd.)*
Hamburg, 571 cks.
Rotterdam, 90
Hamburg, 1 66 bgs.

**Dyestuffs** *(otherwise undescribed.)*
Boulogne, 4 cks. 1 pkg.
Ghent, 1 1 cs

**Manure—**
Boulogne, 18 bgs.
Dunkirk, 900
Hamburg, 200

**Pitch—**
Antwerp, 225 t.

**Sulphur Waste—**
Rotterdam, 52 t.

## GRIMSBY.

*Week ending July 18th.*

**Caoutchouc—**
Gothenburg, 4 bales

**Chemicals** *(otherwise undescribed)*
Antwerp, 10 cks.
Dieppe, 42 cs. 82 pkgs.
Hamburg, 13
Rotterdam, 2
Malmo, 10

**Coal Products** *(otherwise undes.)*
Dieppe, 172 cks.

# PRICES CURRENT.

WEDNESDAY, August 10th

Prepared by Higginbottom and Co., 116, Portland Street, Manchester.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities ma*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids:—** | | | | |
| Acetic, 25 % and 40 % | per cwt. | 7/- & | | 11/- |
| ,, Glacial | ,, | | | 50/- |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 %) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ( ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 5 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| ,, ,, (medium qualities) | ,, | 4 | 15 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & | | 33/- |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 9 | 17 | 6 |
| ,, (grey) Hull | ,, | 9 | 17 | 6 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to | | 75/- |
| Bleaching Powder, 35 % | nett ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 2 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to | | 35/- |
| **Coal Tar Dyes:—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8¾ |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 10½ |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 7 |
| ,, 50/90 ,, | ,, | 0 | 1 | 3 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 6 |
| ,, (crude 60°) | per gallon | 0 | 1 | 4 |
| Creosote (ordinary) | ,, | 0 | 0 | 1 |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 0 | 11 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 44 | 12 | 6 |
| ,, Sulphate | ,, | 15 | 5 | 0 |
| ,, Oxide (copper scales) | ,, | 44 | 0 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 45 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 15 | 0 |
| ,, Litharge Flake (ex ship) | ,, | 14 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, ( brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |

| | | £ |
|---|---|---|
| Lime, Acetate (brown) | per ton | 5 |
| ,, ,, (grey) | ,, | 10 |
| Magnesium (ribbon and wire) | per oz. | 0 |
| ,, Chloride (ex ship) | per ton | 2 |
| ,, Carbonate | per cwt. | 1 |
| ,, Hydrate | per ton. | 17 |
| ,, Sulphate (Epsom Salts) | per ton | 2 |
| Manganese, Sulphate | ,, | 17 |
| ,, Borate | per cwt. | 2 |
| ,, Ore, 70 % | per ton | 4 |
| Methylated Spirit, 61° O.P. | per gallon | 0 |
| Naphtha (Wood), Solvent | ,, | 0 |
| ,, ,, Miscible, 60° O.P | ,, | 0 |
| **Oils:—** | | |
| Cotton-seed | per ton | 19 |
| Linseed | ,, | 20 |
| Lubricating, Scotch, 890°—895° | ,, | 7 |
| Petroleum, Russian | per gallon | 0 |
| ,, American | ,, | 0 |
| Potassium (metal) | per oz. | 0 |
| ,, Bichromate | nett per lb. | 0 |
| ,, Carbonate, 90% (ex ship) | per ton | 18 |
| ,, Chlorate | per lb. | 0 |
| ,, Cyanide, 98% | ,, | 0 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 |
| ,, Nitrate (refined) | per cwt. | 1 |
| ,, Permanganate | per cwt. | 3 |
| ,, Prussiate Yellow | per lb. | 0 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 |
| ,, Muriate, 80 % ( do. ) | ,, | 7 |
| Silver (metal) | per oz. | 0 |
| ,, Nitrate | ,, | 0 |
| Sodium (metal) | per lb. | 0 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 6 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 |
| ,, Acetate (ex-ship) | ,, | 18 |
| ,, Arseniate, 45 % | ,, | 11 |
| ,, Chlorate | per lb. | 0 |
| ,, Borate (Borax) | net, per ton. | 29 |
| ,, Bichromate | ,, per lb. | 0 |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | net pr. ton (10 ton lots) | 11 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, | 11 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, | 10 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, | 9 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, | 8 |
| ,, Bicarbonate | ,, | 6 |
| ,, Hyposulphite | ,, | 7 |
| ,, Manganate, 30% | ,, | 16 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 |
| ,, Nitrite, 98 % | per ton | 30 |
| ,, Phosphate | ,, | 15 |
| ,, Prussiate | per lb. | 0 |
| ,, Silicate (glass) | per ton | 5 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 |
| ,, Stannate, 40 % | per cwt. | 3 |
| ,, Sulphate (Salt-cake) | per ton. | 1 |
| ,, ,, (Glauber's Salts) | ,, | 1 |
| ,, Sulphide | ,, | 7 |
| ,, Sulphite | ,, | 6 |
| Strontium Hydrate, 100% | ,, | 8 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 |
| ,, Barium, 95 % | ,, | 0 |
| ,, Potassium | ,, | 0 |
| Sulphur (Flowers) | per ton. | 8 |
| ,, (Roll Brimstone) | ,, | 6 |
| ,, Brimstone: Best Quality (nominal) | ,, | 5 |
| Superphosphate of Lime (26 %) | ,, | 2 |
| Tallow | ,, | 26 |
| Tin (English Ingots) | ,, | 97 |
| ,, Crystals | per lb. | 0 |
| Zinc (Spelter) | per ton | 21 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 |

THE

# HEMICAL TRADE JOURNAL

AND

## OIL, PAINT and COLOUR REVIEW.

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## DVERTISEMENTS.

RESSES.—Two Second-hand PRESSES for
ohnson's make; cheap, and in good working order.—ANDREWS & Co.,
n Road, London, W.C.

BOROUGH OF DARWEN.

TENDERS FOR OXIDE OF IRON.

orporation are prepared to receive TENDERS
upply of 100 Tons OXIDE OF IRON; also for the purchase of 150
OXIDE.
may be obtained on application to Mr. THOS. DUXBURY, Gas
rwen.

DARWEN CORPORATION GASWORKS.

TENDERS FOR TAR.

as Committee of the above Corporation invite
ERS for their surplus TAR for One Year (about 800 Tons), delivered
in Contractor's Tanks.
ers, endorsed "Tar," will be received by the undersigned up to 12
29th inst.; but any further particulars must be obtained from Mr. T.
s Engineer.

By order,
CHARLES COSTEKER, Town Clerk.

ugust 13th, 1892.

COUNTY BOROUGH OF WIGAN.

TO TAR DISTILLERS AND OTHERS.

as Committee of the Wigan Corporation in-
NDERS for TAR for one year, commencing on the 1st September,
inating on the 31st August, 1893.
and form of tender may be obtained on application to the undersigned.
tender not necessarily accepted.
led and endorsed "Tar" to be addressed and delivered to ARTHUR
Town Clerk, on or before the 19th September next ensuing.

JOS. TIMMINS, Engineer, etc.

Works, Wigan,
18th, 1892.

## Advertisements.

dvertisements of Situations Vacant, Premises on Sale or To be Let
Wants, and Specific Articles for Sale by Private Contract are
e *Chemical Trade Journal* at the following rates:—

o Words and under ..... 2s. 0d. per insertion.
Each additional 10 words ..... 0s. 6d. ,,

**ments of Situations Wanted are inserted at one-half the when prepaid, viz.:—**

o Words and under ..... 1s. 0d. per insertion
Each additional 10 words ..... 0s. 3d. ,,

rtisements, Announcements in the Directory Columns, and all Adver-
prepaid, are charged at the Tariff rates which will be forwarded on

ments intended for insertion in the current week's issue
the office by **Wednesday morning** at the latest.

## CURRENT TOPICS.

### THE LANE-FOX CASE.

THE arguing of a patent case at law is generally a long-winded performance, and intending litigators are as a rule prepared to exercise the virtue of patience to a degree, but the case of Lane-Fox *v.* the Kensington and Knightsbridge Electric Lighting Company eclipses, we think, anything of its kind up to date.

When this action, which was begun in 1889, first came up for trial, it took fifteen days in being heard, with the result that it was ruled by Lord Justice A. L. Smith that the plaintiff's patent had not been anticipated and had been infringed; with this qualification, however, namely, there was a want of conformity between the provisional and complete specifications, the instructions in the latter being moreover insufficient and unintelligible to the ordinary workman, a test prescribed in the Patent Laws, and non-compliance with which was fatal.

Both parties appealed, and recently Lord Justice Lindley delivered judgment as follows, in which judgment Lords Justices Lopes and Kay concurred.

Their Lordships held that the plaintiff's patent would have been infringed if it had not been rendered invalid by the disparities in the two specifications which were granted for an invention different to that for which plaintiff now claimed protection. In addition to this, the specification did not disclose in a sufficiently explicit manner the method of working the system to meet the requirements of the ordinary workman test already referred to.

It will thus be seen that on both points the decision went against the plaintiff.

Unfortunate as the case was for Mr. Lane-Fox, it affords an excellent danger-board to others who are likely to drift into similar troubled waters which are full of the quicksands and shoals with which patent litigation is usually fraught. It also affords an excellent instance of the improvement which is needed in our Patent Laws, and concerning which so much has been said of late on all sides, so as to minimise the possibility of a man (who as Lord Justice Lindley said he was convinced had made a great advance in incandescent lighting by his suggestions) having to run the risk of failing to secure monetary reward for his pioneering, by making the acceptance of two conflicting specifications so difficult a matter as to be practically an impossibility.

### NOVEL ADULTERATION.

It is a somewhat anomalous state of affairs when persons are charged with adulterating goods with an adulterant which is more costly than the material actually sophisticated, yet some recent prosecutions instituted by the Commissioners of the Inland Revenue at the Manchester City Police Court reveal the existence of such a state of affairs.

Two tobacconists were charged with selling or having on their premises tobacco adulterated with scent. It was stated for the defence that the seeds or scent used, as the case may be, were both more expensive than the tobacco itself, the addition being made merely to satisfy the demands of the public, and without the slightest intention of defrauding the Revenue. A fine of twenty shillings in one case and ten shillings in the other was imposed. Another case was that of selling a tincture of camphor containing methylated spirits. From the evidence produced only a nominal fine of one shilling was imposed.

### THE OLD COMPLAINT.

The three cases cited above emphasise the oft-reiterated grievance which forms the chief element of dissatisfaction in prosecutions of this kind, and that is the arbitrary way in which unconscious offenders are treated. We are perfectly cognisant of the legal maxim, *ignorantia juris non excusat*, but in almost every case of this nature both barrister and magistrate refer respectively to the desirability of the Somerset House authorities warning unwitting offenders, instead of summoning straight off the reel, and to the inexpediency of prosecuting for an offence as much as four months after the committal of the same. The necessity for some delay is obvious, but the explanation of an interval of four months simply by the assurance that no *undue* delay had been made is meagre, to say the least. The blame is usually thrown indirectly on the necessity for analysing the confiscated goods, and the time required for doing so, but the official inclination to precipitancy seems to tend in one direction only. If some of this energy was devoted to expediting pending prosecutions instead of to plunging into fresh summonses on every possible opportunity, we should have fewer references to these objectionable features which are "dunned" at with such unremitting constancy.

## THE BRITISH ASSOCIATION.

### CHEMICAL SECTION.

On Tuesday, last week, Dr. Bailey, B Sc., Ph.D., Manchester, read a paper before this section on "The impurities of town air." He said that during the past year the Air Analysis Committee of Manchester, in conjunction with the Royal Horticultural Society, had been engaged on the analysis of the air of large towns. From the results of several hundreds of analyses carefully conducted in London, Manchester, and Liverpool, the following conclusions were drawn:—(1) That in clear breezy weather the amount of sulphurous acid was less than 1 milligramme per 100 cubic feet of air; (2) that in anticyclonic periods it rose very considerably, and in times of fog the maximum of 34 and 50 milligrammes had been recorded for the worst districts of Manchester and London respectively; (3) that wherever an open space or a less densely populated area occurred there was a very marked diminution in the amount of impurities in the air; (4) that an increase in the amount of sulphurous acid was accompanied by at least as large an increase in the amount of organic impurities in the air; (5) that smoke, promoting as it did the formation of fog and preventing free diffusion into the upper stratum of the air, must be regarded as the principal cause of the impure state of the atmosphere in large towns.

Sir Douglas Galton hoped that inquiries into this subject would be pursued further. He did not suppose they would be able with great ease to purify the air of their great towns so long as they consumed their coal in open fireplaces and so long as they continued to allow the factory chimneys to send up their products of combustion into the air without being purified. There were many methods by which the air in the midst of their towns was rendered impure. They kept in the midst of towns a large quantity of decomposing matter from stables and ashpits, and street pavements were often covered with a great deal of impure matter. The more they could show in what respect each source of impurity contributed towards the impurity of the air the more they would be able to impress upon the people the great importance of removing those different sources of impurity.

Mr. R. Warrington pleaded for better methods of investigation
Mr. A. E. Fletcher, government inspector of factories, L
thought that when electric heat came to their aid great things mi
done in the way of air purification, but while there were ope
places there would be smoking chimneys. They might prevent
rising from factory chimneys, but it was very hard to see how
would be able to attack the multitude of small household fires.
was one thing they might do—namely, try to filter the air.
thought much more good than had yet been attempted, might b
if people placed a large cotton-wool filter in their houses. H
erected such a filter in his own house with great success.

Dr. Bailey, in replying to criticisms, complained that in the
towns the practice was becoming more and more prevalent of usi
atmosphere as a receptacle for pollution by ventilating all sewe
the like into it.

## REFRIGERATION STORES FOR MANCHES

The Markets Committee of the Corporation have for some tin
under consideration the question as to the storage capacit
would be required by Manchester in providing for the importa
frozen meat from Australia and other foreign ports. In consi
this important question they have, in addition to the infor
already obtained, thought it desirable to make further inq
Accordingly the Chairman, Deputy Chairman, and the City Su
put themselves in communication with an experienced person en
in this particular trade, who has on all occasions given the Com
valuable information in respect to the importation of foreign catt
the arrangements for cold-air stores which will be rendered nec
on the completion of the Manchester Ship Canal, and also f
freezing and storage of imported meat. The first question that h
be considered was, they say, in regard to the storage capacity re
for Manchester, and in considering this point they thought it adv
to ascertain the maximum storage at the present time for Live
and found that the full storage capacity was equal to 300,000 ca
of sheep; at the same time they were informed that this capacit
never fully required, and that probably storage for 200,000 ca
was about the maximum required for Liverpool. Considerin
question from this standpoint, and assuming Liverpool is at p
the only district supplying storage for frozen meat, both for thei
city and the remainder of Lancashire, a fair and reasonable ea
tion would be that as Liverpool and the districts adjoining wo
somewhat under the population of Manchester and adjacent tow
would be a satisfactory way of arriving at the storage capacity re
for Manchester by taking fully one-half that required for Live
and allowing for the storage, say, of 120,000 carcases.

Mr. Bannister, of Liverpool, in his report to the Committee, s
"The system that I consider the best to adopt for general pu
in a city such as Manchester, where nearly every variety of peri
goods will have to be dealt with, is the system that is simplest in
struction, of good mechanical design in all its parts, and of the
highest class of workmanship throughout—a machine that any
mechanic can manage, and where no skilled supervision is nece
It must be capable of working 365 days and nights in a year, a
being pushed to 25 per cent. over its duty in case of emergency.
machinery must be thoroughly capable of drying the goods stored
they are soft and hot without deteriorating the other goods
store."

A four-storeyed building is suggested, consisting of 35,000
feet of chill-room, 360,000 cubic feet of cold stores, and 50,000
feet of cellars for fish storage purposes.

## FALL OF A VITRIOL CHAMBER AT WIDNE

A serious accident took place on Thursday in last week
Waterloo-road works of Messrs. Hutchinson and Co. As
of our readers are aware, a large portion of these works is
demolished by the United Alkali Company, who have sold the la
Messrs. W. Gossage and Sons for the extension of their soap w
The process of demolition, which commenced about twelve month
has been carried out by the company's workmen, under the super
of Mr. A G. Kyle, engineer of Hutchinson's works. The undert
is a large one, and it has not been pushed forward with any
precipitancy, but this is the second fatal accident that has occurr
the job, a man named Murphy being killed there last March.
then considerable headway has been made in the removal of the
ings and plant, and last week a gang of men, working under a fo
named John O'Brien, commenced to pull down the four large
chambers which ran parallel with Waterloo-road. They first re
the casing of lead, leaving the wooden framework of the four chan

which were separated from each other by narrow passages, standing alone. The chambers were erected on a brick foundation, and elevated 12 or 14 feet above the ground. Three of the chambers were 90 feet by 60 feet and about 20 feet high, while the fourth was smaller. The sides of the chamber were constructed of timber, 7in. by 3in., with 14 pitch pine columns 9in. square. The roof was supported on similar 7in. by 3in. timbers, fastened into iron sockets attacked to very heavy crossbeams. The small chamber, which was the nearest to the "big offices" and was known as No. 1, was pulled down on Wednesday without accident of any kind. On Thursday morning O'Brien's gang of twelve men commenced to pull down No. 2 chamber, and for that purpose rigged up a powerful derrick, and also took special precautions to strengthen the timbers so that they should not give way. Up to a quarter past three in the afternoon the work went on all right. At that time they commenced to remove the joists at the top of the framework near the No. 3 chamber on the Waterloo-road side, and they also took down a tunnel which had been used to convey the gas from one chamber to the other. Whether there was some weakness in the structure which had escaped detection, or whether the removal of the joists in that corner weakened the framework, it is impossible to say; but the fact is that this had no sooner been done than, after giving a very slight warning in the shape of a creaking sound, the whole of the woodwork fell with a tremendous crash, breaking up the wooden floor in many places, knocking down the brick wall at the end nearest the offices, and precipitating a large quantity of bricks and timber upon the roof of the caustic shed beneath, and quickly laying it low. Luckily there was no one working there, or the catastrophe would have been more serious than it was. It is evident, however, that the uprights must have given way, and when we consider that the chamber had been in use a considerable number of years, and the leakages which must constantly be taking place, it is not too much to think that the woodwork had been decayed in some very important places, and thus caused the building to collapse. As we have said, there were twelve men working at this place, in addition to the foreman, who was just going away when the crash came. He was at the far side of the adjoining chamber, and so startled was he by the fall that he went down the fifteen or twenty steps to the ground almost at one bound, and was fortunate in coming off scot free. The men were divided into three groups, and if their presence of mind had been greater it is quite probable that none of them would have been killed. Four of the men were working on the roof, and they escaped without serious injuries. They fell with the joists and were severely shaken, one of them, Patrick Martin, escaping uninjured. Three other men were working at the side nearest Waterloo-road. One of them was injured, but Patrick Barrett, of Catherine-street, jumped through an opening in the wall to the ground, a depth of about a dozen feet, and was also uninjured, and William Rourke likewise escaped without injury. On the other side, at the corner nearest the No. 3 chamber, four men were working. On hearing the creaking sound three of them made a dash for the ladder at the end nearest the offices, thus having to pass right under the falling timbers, and they were, unfortunately, all caught, two being killed and the other injured to such an extent that he succumbed to his injuries on Sunday morning last.

## THE CHEMICAL TRADE OF THE TYNE WITH U.S.A.

SINCE the purchase of the whole works of the United Kingdom by the United Alkali Company, Limited, a report of our trade with America has been prepared by Consul Metcalf, in which he says the chemical trade on the Tyne is represented by four works employing a much less number of men than formerly, on account of the improved machinery introduced. One of these works, formerly Alhusen's, turns out the largest quantity of caustic soda of any works in the world, and is, we believe, the only one manufacturing high-strength caustic soda of 77 per cent.

With regard to the output, it has declined. The reason of this might be slightly due to the increase in prices, but is mainly due to the depression in trade. It should also be borne in mind that if less shipments go from the Tyne than formerly, it may be due to the company now shipping from their works at Liverpool and Glasgow to the United States on account of lower freights, quicker dispatch, &c. The Tyne is very much occupied by the Russian trade.

With regard to the sale in the United States, it is now done through few firms where formerly every works had its own agent and sold only for that firm. We believe the head agents of the company for the United States are all located in New York.

The table herewith compiled from the returns published by the Tyne Improvement Commissioners, shows a serious decrease in the chemical export trade of 1891.

TRADE WITH THE UNITED STATES.

Table showing goods imported into the Tyne from the United States during the years 1890 and 1891.

| Articles. | 1890. Tons. | 1891. Tons. |
|---|---|---|
| Soaps | 5 | — |
| Chemical, unenumerated | — | 28 |
| Glucose | 127 | 594 |
| Drysalters' stores | 41 | 35 |
| Cottonseed and linseed cake | 728 | 108 |
| Glass | — | 1 |
| Colours and litharge | — | 8 |
| Phosphates | 14,607 | 5,733 |
| Oils, Paraffin and Petroleum | 7,583 | 12,153 |
| Oils, Other | 18 | 6 |
| Tallow, fat and grease | 757 | 390 |
| Corks and cork wood | — | 12 |
| Bark, tanners' | 10 | — |

Table showing goods exported from the Tyne to the United States during the years 1890 and 1891.

| Articles. | 1890. Tons. | 1891. Tons. |
|---|---|---|
| Alkali and soda ash | 4,501 | 2,362 |
| Alum and alum cakes | 206 | 72 |
| Ammonia and sal ammoniac | — | 340 |
| Barytes, carbonate and sulphate | 300 | 647 |
| Baryta manufactures | 1 | 33 |
| Bleaching powder | 4,340 | 1,831 |
| Caustic soda | 4,744 | 3,232 |
| Copperas | 142 | 58 |
| Hyposulphite of soda | 143 | 128 |
| Manganate of soda | — | 2 |
| Manure | 2,016 | 939 |
| Magnesia | 19 | 10 |
| Nitrate of soda and potash | 42 | 11 |
| Pearl harding and gypsum | 1,670 | 1,653 |
| Soda crystals | 4,714 | 2,623 |
| Sulphate of soda | 1,495 | 28 |
| Cement | 19,801 | 14,676 |
| Glass | 6 | 114 |
| Litharge | 13 | 18 |
| Pig lead | 500 | — |
| Red and white lead and paint | 125 | 126 |
| Plaster of Paris and whiting | — | 23 |
| Spanish brown and yellow ochre | — | 2 |
| Venetian red | 859 | 32 |

The manufacture of sal soda is said to be making rapid strides in the United States, both as regards the quantity and quality of the production. It would be interesting to know how far the decrease in our trade has really been affected by this fact.

## DISPOSAL OF THE VERDIN TRUST FUND.

AFTER a series of debates the Northwich Local Board has accepted the portion of the Verdin scheme which comes under their jurisdiction. Originally, Mr. Joseph Verdin, of the Brockhurst, Northwich, gave £26,000., the interest of which was to be devoted to the payment of compensation to sufferers from subsidence through the removal of salt, but since the passing of the Brine Pumping (Compensation for Subsidence) Act the trustees have decided that there is no necessity to dispose of the Verdin Fund in this way. The Charity Commissioners have accordingly approved of a scheme which provides as follows:—£6,000. shall be used in endowing the Victoria Infirmary, Northwich; £500. as an endowment of the Verdin Institute, Moulton; £4,000. to endow technical schools and gymnasiums at Northwich, Winsford, or other places within the limits of the Northwich Poor-law Union. The residue is to be applied in satisfying claims for compensation which are not met by the Compensation Act and for maintaining the schools, etc. In discussing the subject several members of the Northwich Board held that the fund was given for compensation purposes and could not be diverted to any other object.—The Clerk (Mr. Cowley) pointed out that the Charity Commissioners had decided that question, and that it was possible, if Northwich demurred about accepting the gift the trustees would transfer the money to other townships in the district. It is understood that the trustees will in the course of the present week ask the Local Board of Winsford to accept £2,000. for the endowment of a school in that district. When these preliminaries have been completed, sites for the erection of the institution will be secured.

## PURE LIQUID AMMONIA AND REFRIGERATION.

By Dr. Hans von Strombeck.

In a recent paper read before the Chemical Section of the Franklin Institute, Dr. Hans von Strombeck says :—that a few weeks after the communication of his paper to the institute on "The Manufacture of Pure Liquid Ammonia" (*Chemical Trade Journal*, No. 272, p. 80), Mr. Louis Block, chief engineer of the De La Vergne Refrigerating Machine Company, showed me a piece of a black, dough-like paste which had been scraped out of the compressor of a refrigerating machine. He said that this paste had interfered with the proper working of the valves of the compressor, and thus with the proper working of the whole plant, and requested me to ascertain how this paste could have been formed, and how its formation could be prevented. The weight of the paste scraped out was only 35·24 grains, or about one-twelfth ounce. As a superficial examination of the paste showed the presence of a considerable percentage of iron, I thought, first, that the mineral oil used in the compressor might contain some mineral acid or some fatty oil which by setting free fatty acid had acted on the valves of the compressor. But an examination of the oil used proved it to be pure mineral oil of the same chemical and physical properties as usual. I then made a thorough analysis of the black paste ; that is to say, as thorough as the small quantity of substance available allowed.

The 35·24 grains of the black paste consist of :—

| | Grains. | | Per Cent. |
|---|---|---|---|
| Moisture | 3·0860 | = | 8·7565 |
| Mineral oil | 4·2278 | = | 11·9965 |
| Ammonium sulphide | 0·0092 | = | 0·0260 |
| ,, sulphate | 0·1137 | = | 0·3227 |
| ,, chloride | 0·0779 | = | 0·2210 |
| Organic matter sol. $OH_2$ | 6·2489 | = | 17·7324 |
| Peroxide of iron | 6·5302 | = | 18·5301 |
| Sulphide of iron | 0·7601 | = | 2·1569 |
| Insol. organic matter (diff.) | 14·1862 | = | 40·2579 |
| | 35·2400 | | 100·0000 |

The kind of bodies found made me suppose that the formation of the black paste is due to the action of impurities contained in the liquid ammonia on the valves and the oil in the compressor, and the analyses of five liquid ammonias, which had been made of different raw materials and by different processes, prove that my supposition was correct :—

| | G. Per Cent. | | H. Per Cent. |
|---|---|---|---|
| Ammonia (by difference) | 97·9260 | .... | 98·8040 |
| Colourless fluid | 1·4322 | .... | 0·9734 |
| Moisture | 0·5882 | .... | 0·1962 |
| Mineral oil | 0·0158 | .... | 0·0120 |
| Hartshorn salt of ammonia | 0·0304 | .... | 0·0094 |
| Ammonium sulphide | 0·0008 | .... | 0·0033 |
| Sulphate of ammonia | 0·0042 | .... | 0·0014 |
| Ammonium chloride | 0·0002 | .... | 0·0001 |
| Mineral matter suspended | 0·0022 | .... | 0·0002 |
| | 100·0000 | .... | 100·0000 |

| I. Per Cent. | | K. Per Cent. | | L. Per Cent. |
|---|---|---|---|---|
| 99·9304 | .... | 99·9449 | .... | 99·3115 |
| 0·0307 | .... | 0·0084 | .... | 0·0270 |
| 0·0281 | .... | 0·0260 | .... | 0·0266 |
| 0·0032 | .... | 0·0038 | .... | 0·0108 |
| 0·0064 | .... | 0·0159 | .... | 0·0235 |
| 0·0002 | .... | 0·0005 | .... | 0·0002 |
| 0·0004 | .... | 0·0005 | .... | traces |
| traces | .... | traces | .... | 0·0004 |
| 0·0006 | .... | traces | .... | traces |
| 100·0000 | .... | 100·0000 | .... | 100·0000 |

Sample L contains also some resinous matter. Now it seems impossible that such small quantities of ammonium sulphide and chloride, sulphate and carbonate of ammonia as found in these ammonias can destroy enough iron and oil to explain the presence of the black paste. For, if we take a plant in which 2,000 pounds of such ammonia as analysed under G circulate, the contaminations contained in the 2,000 pounds can only eat off 0·44 pounds of iron. By distributing this loss of iron over the whole interior surface of the pipes, etc., of the plant ; that is to say, over a surface of 1,000 square feet and more, it will be seen that the loss undergone by the valves is only infinitesimally small. Thus the damage done by these contaminations would be equal to nothing if the reaction between the acids contained in them and the metal took place only *once* and stopped as soon as the formation of the neutral salt had taken place. But this is not so. I the electricity generated in the working of a refrigerating plant t sulphate and carbonate of ammonia, the ammonium sulphide a chloride are decomposed, their acids combining with the iron of t pipes, etc., and decomposing the oil. The iron salts thus forme afterwards dissolve in the water, always sufficiently present, and in t ammonia and are transformed again into sulphate, etc., of ammoni the iron being separated out and being more or less oxidised by t oxygen of the air, which is always present in small quantities. T newly formed sulphate, etc., of ammonia is decomposed again by t electric current, and so on, a continuous circuit being formed. In th way by a very small quantity of impurities of this kind, considerab quantities of iron and oil can be destroyed and the proper workin of the plant interfered with, the latter so much more, as in its mo sensitive point in the compressor the action of the acids is most energeti because of the high temperature (150°) prevailing there.

To avoid the formation of such a black paste and its unpleasa consequences, it is, therefore, necessary to use in a refrigeratin machine only such liquid ammonias out of which all ammoniacal sal have been removed. While this removal can be done in differe ways, my new process of purifying ammonia also takes these ammoniac salts out, the reactions being as follow :—

$$(NH_4)_2SO_4 + Na_2 = Na_2SO_4 + 2NH_3 + H_2$$
$$(NH_4)_2S + Na_2 = Na_2S + 2NH_3 + H_2$$
$$2NH_4Cl + Na_2 = 2NaCl + 2NH_3 + H_2$$

## EXPORTS OF PETROLEUM FROM U.S.A.

The chief of the Bureau of Statistics, Mr. S. G. Brock, gives th exports of petroleum and petroleum products from the Unite States during the month of June, 1892, and during the twelve mont ending June 30th, 1892. The total value of the shipments for June wa $3,472,761 as against $4,039,516 in 1891, and for the twelve mont ending June 30th, 1892, $44,191,001 as opposed to $51,313,446 i 1891. The shipments were as follows :—

| CRUDE PETROLEUM. | Gallons. |
|---|---|
| Total for June, 1892 | 10,636,888 |
| Total for June, 1891 | 5,888,511 |
| Total for 12 months ending June 30, 1892 | 102,608,862 |
| Total for 12 months ending June 30, 1891 | 89,905,663 |
| **NAPHTHAS.** | |
| Total for June, 1892 | 768,469 |
| Total for June, 1891 | 513,933 |
| Total for 12 months ending June 30, 1892 | 12,713,221 |
| Total for 12 months ending June 30, 1891 | 12,113,999 |
| **ILLUMINATING.** | |
| Total for June, 1892 | 50,440,613 |
| Total for June, 1891 | 46,944,365 |
| Total for 12 months ending June 30, 1892 | 561,098 908 |
| Total for 12 months ending June 30, 1891 | 567,523,573 |
| **LUBRICATING.** | |
| Total for June, 1892 | 1,234,952 |
| Total for June, 1891 | 2,531,175 |
| Total for 12 months ending June 30, 1892 | 33,386,971 |
| Total for 12 months ending June 30, 1891 | 33,281,551 |
| **RESIDUUM.** | |
| Total for June, 1892 | 62,492 |
| Total for June, 1891 | 115,080 |
| Total for 12 months ending June 30, 1892 | 493,122 |
| Total for 12 months ending June 30, 1891 | 1,562,726 |

## CARBONATE OF SODA AND POTASH.

The manufacture of these carbonates is the subject of a rece patent in which by mixing bauxite and salt, hydrate of alumin hydrochloric acid and sulphur are obtained as well as the carbonat themselves. The method of accomplishing the decomposition is follows, being divided into three stages :—

*1st stage.*—Ground aluminium hydrate, as bauxite, is moulded in bricks, balls, etc., with sodium or potassium chloride, dried, a treated in a series of twelve continuously working kilns, connected flues, with a mixture of sulphurous acid, air and steam, at a temperatu of 400° to 500° C. The gases pass downwards through each chamb hydrochloric acid is evolved, and passing off, is condensed as usual.

In the first place, the defendant was restricted from carrying on business for 25 years—*i.e.*, 18 years beyond the period of seven years for which he was to be managing director of the company under the contract. Then what was he not to do during that time? He was not to do anything forbidden by clause of the agreement (which his Lordship proceeded to read). That, in his Lordship's opinion, was too wide and general. But, even if it were not so, his Lordship was not prepared to say that the restriction of 25 years was not too long a period. On this point, accordingly, the defendant succeeded, and the injunction was refused. With regard to clause 6, his Lordship was of opinion that it was not void for uncertainty. Questions of difficulty might arise on the clause, which would have to be dealt with as they arose, but at present he need only say that an inquiry must be directed as to what, if any, patents there were coming within clause 6. The costs of this part of the case would be reserved. There would be no order as to the costs of the other part of the case.

## SUPREME COURT OF JUDICATURE.

### COURT OF APPEAL.

*(Before Lords Justices Lindley, Lopes, and A. L. Smith.)*

MOENICH *v.* FENESTRE.

This was an appeal from an order of Mr. Justice Stirling restraining the defendant until the trial of the action from carrying on or engaging in any trade or business in the United Kingdom in connection with any kind of goods of Continental manufacture dealt in by the firm of Oscar Moenich and Co. at any time previously to February 4, 1892, the date at which the defendant left the plaintiff's service. By an agreement dated August 9, 1880, made between the plaintiff, who was described as an agent or commission merchant carrying on business under the style of Oscar Moenich and Co., of the one part, and the defendant, C. H. J. Fenestre, of the other part, the defendant agreed to enter the plaintiff's service as clerk at a salary of £150. a year and a percentage of 10 per cent. upon the profits realised from all business transacted by the firm in articles of French manufacture. Clause 4 of the agreement provided as follows:—"In case the aforesaid employment of the said C. H. J. Fenestre shall be determined by any cause whatever he shall not during the period of five years thence next following carry on or engage in, either as principal agent, clerk, or otherwise, any trade or business in the United Kingdom in connection with any kind of goods of Continental manufacture which the said firm of Oscar Moenich and Co. shall have dealt in at any time previously to such determination." On February 4, 1892, the defendant put an end to this agreement and embarked in a rival business. The plaintiff accordingly moved to restrain him from carrying on any business in contravention of the above agreement. The defendant's case was that the agreement was unreasonable and oppressive and was void as being in restraint of trade. The defendant alleged that the articles dealt in by the plaintiff amounted to several thousands and that the effect of enforcing the agreement would be to exclude him from 215 trades, which he enumerated. Mr. Justice Stirling considered that the restraint was not greater than was reasonably required for the protection of the plaintiff, and he granted an injunction as prayed. The defendant appealed.

Mr. Upjohn, in support of the appeal, contended that the covenant in the agreement was unreasonably wide and was so worded that the part that was valid could not be severed from the part that was invalid. According to the true construction of the agreement, it excluded the defendant, for instance, from carrying on business as a provision merchant, because the plaintiff might have dealt in half-a-dozen articles dealt in by provision merchants.

Mr. Giffard, Q.C. (with whom was Mr. Oswald), appeared for the plaintiff, and contended that the wide expressions used in the covenant should be construed with reference to the subject-matter of the agreement, and that the covenant was not intended to bear the wide construction which the defendant had placed upon it for the purpose of invalidating it.

The Court dismissed the appeal.

Lord Justice Lindley said that the agreement was so worded as to be difficult to construe. The true principle applicable to this case was that stated in "Mill *v.* Dunham" (7 *The Times* Law Reports 238), that agreements of this description were to be approached so as to give effect to their intention without any reference to the question of their legality or illegality. Applying that principle, the first thing to be observed was that the plaintiff was described as an agent or commission merchant. What he desired to guard against was the competition of persons engaged in any rival business. But it could not be said that a retail dealer was his rival. The two businesses had nothing to do with each other. The plaintiff took the defendant into his service, and he stipulated that when the defendant left his service he should not enter into competition with him. The key to the construction of this agreement was to be found in the nature of the employment, and if the language of the covenant appeared to be very wide it was to be construed in such a way as to carry out the obvious intention of the parties. The words "any trade or business" in the covenant did not mean any retail trade in which Continental goods might happen to be sold, because a commission merchant would not be hurt by any one going into a shop and buying such goods. The words must mean any trade or business as commission agent. The covenant was confined to any trade or business which competed with the plaintiff's. The next point was that the agreement extended over the whole of the United Kingdom, but that restraint was perfectly reasonable, having regard to the nature of the plaintiff's business. Then objection was taken to the words "at any time previously," but it was unreasonable to construe those words as meaning any time since the plaintiff started business. The object of the restriction was to prevent the defendant from taking advantage of his employment to compete with the plaintiff. Those words must therefore be limited to the period of the defendant's employment. Then came the question of law—whether upon this construction the agreement went further than was reasonably required for the protection of the plaintiff. His Lordship thought not. Although the question was not free from difficulty, in His Lorship's opinion the view taken by Mr. Justice Stirling was right, and the appeal ought to be dismissed.

Lord Justice Lopes, in concurring, said that there were two canons of construction applicable to cases of this kind. One was that the restraint, having regard to all the circumstances of the case, the business of the employer, and the nature of the employment, must not be greater than was reasonably required for the protection of the plaintiff in his trade or business. The other was that the agreement must be construed according to the reasonable meaning of the language used without considering what the effect would be. Reading the covenant by the light of what the plaintiff's employment was, it was not difficult to adopt the construction which had been placed upon it by Lord Justice Lindley, and so construed the covenant was neither unreasonable nor oppressive.

Lord Justice A. L. Smith also concurred. That the construction placed by the Court upon the words "any trade or business" was the right one was shown by the subsequent words of the covenant, "which the said firm shall have dealt in at any time." That meant not bought or sold in a shop, but dealt in as commission merchants.

# Official Memoranda.

*(From the Board of Trade Journal.)*

## CHEMICAL INDUSTRY IN GERMANY.

In his annual report on the trade and commerce of the district of Frankfort-on-the-Maine, Mr. C. Oppenheimer, Her Majesty's Consul-General at that town, supplies the following particulars respecting the position of the chemical industry in Germany:—

An important branch of the German export is the chemical industry. The following statement gives a general idea of the export of the most prominent chemicals and drugs in 1891:—

Essential oils, 2,546 met. centners; gelatine, 4,535; glue, 37,737; explosives, 19,404; soda, calcined, 353,303; potassium, 110,934; alkaloids, 584; quinine, 1,869; chloride of potassium, 769,962; iodide of potassium, 977; sulphate of potash, 301,888; mineral waters, 335,632; salicylic acid, 2,170; saltpetre, 96,629; hydrochloric acid, 103,123; gunpowder, 37,834; tartaric acid, 7,769.

An increase in exports is to be noted in the preceding statement for calcined soda, gelatine, glue, quinine, chloride of potassium, sulphate of potash, muriatic acid, a small improvement in potassium. However, a retrogressive movement is to be observed in essential oils, explosives, iodide of potassium, mineral waters, salicylic acid, saltpetre, gunpowder and tartaric acid.

The following statement gives the more important figures in the export of another branch of the chemical industry—dyes, colours, etc., viz.:—

Lead and coloured pencils, 9,464 met. centners; varnish and lac varnish, 5,597; oil and water colour paints, 13,538; ultramarine, 44,040; alizarine, 81,685; aniline, 44,031; aniline and other coal-tar products, 86,818; white lead, 117,538; zinc white and grey colour, zinc, 104,000.

### COAL-TAR PRODUCTS.

The export in coal-tar products, aniline, alizarine, colours and dyes and zinc white, have increased; others, *e.g.*, ultramarine, have decreased. The opinion formed of the trade in general of the chemical industry for this year will not be an unfavourable one. Germany's chemical industry takes a high place, and its products are forwarded to almost all countries of the world. The reason for this extension is to be found in the high theoretical talents of the German people and the excellent schools, which, year by year, furnish a body of educated chemists to advance the trade of the country.

STASSFURTH SALTS.

branch of the chemical industry is worthy of special attention, the potassic salts. This industry has formed a syndicate ublishes accounts every year, and thus facilitates inspection of rse of business.

loride of potassium (80 per cent.) was sold in 1891, 1,341,639 ntners; 1890, 1,265,526; 1889, 1,237,482.

total amount of sales in muriate of potassium (90 per cent.) 1891, 179,804 met. centners; 1890, 129,471; 1889, 62,213.

otal sales of calcined muriate of magnesia (48 per cent) were— 13,998 met. centners; 1890, 108,302; 1889, 92,148.

otal sales of potassic manure salts were—1891, 30,779 met. s; 1890, 18,331; 1889, 22,381.

ieserite the total sales were—1891, 285,591 met. centners; 20,048; 1889, 318,239.

hich Great Britain alone received—1891, 251,454 met. centners; 31,938; 1889, 253,172.

syndicate of the potash works (a sort of combination whose ion is restricted to the sales in common of the products of all rks concerned) with reference to this makes the following s, which will be interesting to those engaged in agriculture :— may be seen from the above figures that the total sales have rably increased from year to year. A continuous increase in sumption of the products is, however, only to be noticed in untries in which among the great masses of the population the gained a firm hold (proved by scientific researches), that with- itable manuring of the soil with potassic salts no lucrative s can be obtained. In this respect the sales of kainit in y and of concentrated potassic salts to France and the United f America are noticeable. Italy and Scandinavia have also for hown themselves to be good markets for potassic manure salts. se countries where the salts are mainly used for technical s, the consumption is always influenced by a combination of t circumstances, to which the articles manufactured from potassic e subjected, and for this reason the sale to those markets es at times considerably."

percentage in which foreign countries participate according to ceding statistics is noticeable. Several products, *e.g.*, kieserite, ost exclusively manufactured in Germany for foreign countries. t also explains why Germany's chemical industry, so highly ed, is favourable to free trade. The chemical industry of y in many articles is sufficiently strong to disregard the Customs raised by other countries.

EXPORTS TO GREAT BRITAIN.

export in chemicals to Great Britain, especially in 1891, is the following statement :—

and coloured pencils, 2,487 met. centners; oil and water colour 2,040; ultramarine, 19,305; caustic soda, 3,258; alum, ; glue, 8,881; explosives, 6,045; soda, calcined, 21,464; soda, 10,947; alizarine, 27,991; aniline and coal-tar products, ; white lead, 76,883; chloride of potassium, 129,420; chloride esium, 78,608; sulphate of potash, 46,245; mineral waters, ; saltpetre, 48,087; tartaric acid, 2,633; zinc white and zinc ,910.

IMPORTS FROM GREAT BRITAIN.

chief articles of Germany's chemical imports from Great Britain ollows, the figures referring to 1891 :—

ishes, 3,602 met. centners; chloride of lime, 28,451; carbonate onia, 12,522; *sulphate*, 198,840; anthracene, 51,956; catechu, ; cinchona bark, 19,526; chromate of potassium, 15,294; e, crude, 20,644; indiarubber, 6,942; indigo, 3 560; carbolic ,100.

## SALE OF COTTON AND OLIVE OILS IN SPAIN.

spatch has been received from Sir H. Drummond Wolff, Her 's Ambassador at Madrid, enclosing a copy and a translation of ublished in the "*Eco de las Aduanas*," regulating the sale of nd other oils. The following is a translation of the law referred

1. From the date of the publication of this law in all the Custom throughout the Peninsula and colonies 1½ per 100 of wood tar m will be mixed with all cotton or rapeseed oil which may be d.

2. Olive oil passing through the Spanish Custom houses will be ed, and, if found to contain an admixture of cotton oil or animal per 100 of wood tar or petroleum shall be mixed with it so as to it unfit for food.

3. Mayors and municipal judges who have cognisance of the olive oil mixed with any other oil will seize it, and the judge sider the vendors guilty of contravention of the second paragraph 595 of the Penal Code.

4. The cost of the materials employed in rendering useless cotton or olive oil shall be chargeable to the person introducing chandise.

# Trade Notes.

ROBURITE EXPLOSIVES COMPANY.—The directors of this company have declared a half-yearly interim dividend on the preference shares at the rate of 5 per cent. per annum.

THE NEW COAL SEAM AT ASHTON.—It is estimated that the discovery at the Ashton Moss Colliery, Ashton-under-Lyne, of the seam known as the Great Line, will add to the known available coal supply about fifty million tons. Work at the new colliery commenced on Tuesday last.

PERSONAL.—Mr. John Spencer, Globe Tube Works, Wednesbury, has been awarded a prize medal for his exhibit at the Crystal Palace Electrical Exhibition of iron tubes and fittings, for electric lighting purposes, including telegraph poles, tubes for Brooks's and Ferranti's system.

THE MAXIM FLYING MACHINE.—Last week Sir John Pender, M.P., and party visited Baldwin's Park, Dartford, where Mr. H. Maxim, the inventor, exhibited his new flying machine, which is nearing completion. The machine was put into motion, and displayed great propelling power.

BULK PETROLEUM IN THE SUEZ CANAL.—Respecting the current report of last week to the effect that the passage of tank steamers through the Suez Canal had been prohibited pending the reconsideration of the rules, Messrs. M. Samuel and Co., Houndsditch, London, write to say that having made the fullest enquiries they are informed that there is no truth in the rumour.

BRUNNER MOND'S DIVIDEND.—On Friday last week the directors of Brunner, Mond, and Co., alkali manufacturers, Northwich, issued their report, from which it was seen that the net profits allowed of a dividend for the half-year ended June 30 at the rate of 50 per cent., carrying £50,000. to the reserve fund, making it £350,000. The amount carried forward to the next half-year is £77,000. A similar dividend was declared last half-year.

J. H. CARTER.—At the show of the Cheshire Agricultural Society, which was held at Warrington, on Friday and Saturday, the 19th and 20th inst., Mr. J. H. Carter had a stand, where his grinding machinery was at work on all kinds of materials, he having invited anyone to send him samples which they wished ground. Those who did so were able to see the finished product as it left the disintegrators situated at the show ground.

THE LATEST IN SEWAGE TREATMENT.—In our columns this week, under the heading of "New Companies" and also of "The Patent List," a new process figures, whereby sewage is to be treated with the production of alkalies, chlorine, ferric chloride, and electrical energy. What a lucky man somebody must be if he really possesses a process that will satisfactorily perform the first undertaking, to say nothing of the remainder. It is certainly a comprehensive scheme, which rolls into one, a sewage works, alkali works, chemical works, and an electric supply station, so to speak. The industrious village blacksmith, apparently, isn't in it; yet he enjoyed the feeling that his "something attempted was something done," which sense of satisfaction, however, is a pleasure in store in this particular case, and it is a mighty "something" too.

SCIENCE AND GAS BURNERS.—The somewhat formidable array of heavy scientific literature which has been forthcoming at the recent meeting of the British Association is not without its practical side. Two papers which were the joint contributions of Messrs. B. Lean and W. A. Bone, on "Measuring the pressure produced in gaseous explosions," and "The explosion of ethylene," are of something more than purely scientific interest since the outcome of the new doctrine laid down is said to be the possibility of improving the illuminating powers of ordinary gas burners. Brain picking under the present construction of our patent laws is a practice much complained of, and the two above-named gentlemen may not escape scatheless, if they intend to follow their work to a practical issue, despite the fact that one is "lean" and the other all "bone." We wish them better things, however.

TURNING THE TABLES.—At the last meeting of the Prestwich Guardians, a letter was read from Messrs. Levinstein and Co., chemical manufacturers, Crumpsall, in which it was stated that they had received notice from the Manchester Corporation that offensive matter had accumulated at the entrance to the top water lodge at the works, and as the stuff could only be conveyed to the lodge from premises belonging to the guardians a request was made they should remove the cause of complaint. Councillor Briggs said that there was no entrance at all into the sewer from the premises of the guardians. However, if the board would appoint Mr. Jennison and himsel to deal with the question they would explain to the Corporation how it stood. He did not believe that the matter was objectionable, as it was only an accumulation of

iron from the water. He would go into the subject, and settle it with the Sanitary Committee of the Corporation. The suggestion was agreed to.

Chemical "Indicators."—The unenviable position of the average chemist of to-day and the meagre remuneration which he often enjoys at the hands of those for whom his services are rendered day and night is a recognised fact in Germany as well as in this country. A book recently published by Dr C. Geissler, under the title of "Vivat Ars Chemica!" and briefly reviewed in the *Chemiker Zeitung*, contains many little pithy couplets which are teeming with sarcastic humour, to wit the following, which in prose reads as:—"My uncle, the chemist, has reached the age of forty, and last month he received his first salary. My friend also has already reached a tolerable position, no payment, heavy security, but free breathing." The work contains advice in other directions, couched in the same vein, for instance, "If a girl pleases you first test her mother with *blue* litmus paper." Excellent advice this, but we would suggest that for a gentleman prone to make "caustic" remarks red litmus would be a useful indicator.

## NOTICES.

### LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of
THE CHEMICAL TRADE JOURNAL
From
MR. JOHN HEYWOOD,
2, Amen Corner,
Paternoster Row, E.C.,
On usual trade terms.

### FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed* Money Order is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

## Correspondence.

***We do not hold ourselves responsible for the opinions expressed by our correspondents.*

### *ANSWERS TO CORRESPONDENTS.*

W. B. (Dundee).—The trade is so local, that we can hardly supplant the existing quotations to meet your suggestion. Wire stitching is an impossibility under the post office rules at present in our case. Hence the reason why we lag behind. It is not often you will catch us napping in these matters. We are, however, always pleased to hear any suggestion.
S. A. Co.—It has been sent.
W. P. and Co. (Anvers).—The copy was sent you; we forward another, however.
B. and R.—See this week's issue.
G. L.—Next week most likely.
J. L. (Huddersfield.)—We have not received an answer to our inquiries, but we trust we shall be able to let you hear further next week.
R. J.—They were sent, but you will hear further from us shortly.
J. K.—Thanks for your letter. We always treat such matters as being strictly confidential.
H. F. C.—It is in four volumes. You cannot get the later ones yet.

### THE PROFITS OF FOREIGN ANILINE COMPANIES.

*(To the Editor of the Chemical Trade Journal.)*

Sir,—In your issue of last week you call attention to the enormous profits made by the aniline colour works abroad, but I am surprised you did not give the amounts. It has occurred to me that you have not the actual figures at hand, and I therefore send you for publication the amount of dividends paid during the past six years.

| | Badische. | Meister Lucius. | Bayer. |
|---|---|---|---|
| 1886 | 15 | 8 | 4 |
| 1887 | 16 | 14 | 7 |
| 1888 | 16⅔ | 16 | 12 |
| 1889 | 20 | 20 | 15 |
| 1890 | 22 | 25 | 16 |
| 1891 | 22 | 26 | 17 |
| Capital | £825,000 | £600,000 | £450,000 |

It will thus be seen that these three companies alone have divided during the last six years as dividends close upon *two millions* of pounds sterling.

The foregoing profit is not all. There is the reserve expenses for fighting and maintaining patents amounting to sums, which should be carefully examined by the British m The statistics show a gradual and increasing profit, and t tained principally, not by increasing the yield as was don years, but by a judicious *working* of the British Patent Law by an immense reserve fund which enables these foreign co retain the whole of the available Patent Bar. Rather than inequitable system should continue, there are not wantin the majority of British manufacturers would hail with proposition for sweeping the whole Patent Law from the St

I am, &c.,
"A

London, August 16th, 1892.

## Market Reports.

### TAR AND AMMONIA PRODUCTS.

There is little change to report in the tar products market be to chronicle the fall in benzol to 1s. 6d. for 90's, and per less than was quoted in last week for 50-90's. There is a l carbolic acid, but there is a general attempt to introduce oth ants, some of which have very little value. Pitch retains and anthracene may be said to remain unchanged.

The sulphate of ammonia market keeps dull and dealers this opportunity to make reduced quotations. They are q as £9. 16s. 3d. and Leith at £9. 15s., and it is said that have actually been accepted, and it is also reported that been sold at £9. 16s. 3d. Be this as it may, there is no la of sulphate on the market, and if the demand keeps the sa present, makers have no reason to be frightened. Nitra firmer in tone.

### REPORT ON MANURE MATERIAL

The market continues inactive and prices do not show a alteration.

Nearest value of 75/80% Florida rock is probably 8½d., still asked. Hot-air dried Peace River rock is held for South Carolina River and land rock offers at 7¼d. and 7 boubt be business for cargoes c.i.f. to U.K. Quotations fo and Continental phosphates are unchanged. Buyers in th do not seem much inclined to make further purchases.

Cargoes of River Plate bones are very scarce, and £4. have to be paid for anything of handy size and good Crushed Kurrachee bones are worth £4. 2s. 6d., and Bo meal, fair average quality, £4. 5s., ex quay Liverpool, fo On spot, East Indian bone meal is quoted £4. 2s. 6d. to £ ton, ex store. Common grinding bones are less enquired now not worth over £3. 12s. 6d. to £3. 15s. per ton. unchanged, £3. 12s 6d., on 70%, nett Hamburg terms, nea

Owing to arrivals at Coast, the nitrate market is weak in t but when present arrivals are cleared it is felt that the situa higher prices, and ahead sellers are requiring more money. sellers of port of call cargoes at 8s. 3d. and for large si quality, 8s. 1½d. would likely be accepted. 8s. 4½d. cargoes a little way off, 8s. 6d for June sailings, August's 8 8s. 9d , and October-November 8s. 10½d. to 9s. per cw quoted 8s. 3d. for ordinary, 8s. 6d. for refined. Nothing other material.

### THE LIVERPOOL MINERAL MARK

There is nothing fresh to report in Manganese. Arrivals sales have been made at advanced prices. Borate, 7 sulphate £21. 10s.; oxalate, 1s. 6d. per lb.; chlo carbonate, £12. 10s., steady. Magnesite: Raw lump, only two cargoes afloat; prices firmer. Raw ground £6. calcined £12. 10s. Bauxite (Irish Hill brand): Increased been booked at full figures; lump 20s., seconds 16s., and French chalk: Arrivals small; a good business, however, is prices. "Angel White" brand and "Silvery," 90s. to 92s. quality, 90s. to 95s.; and superfine, 105s. Barytes: Carb lump scarce and brings prices at 90s. to 95s.; nuts, 7 whilst finest white sulphate is in demand. "Angel Whi 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet

ered; prices easy; Bilbao, Irish, and Cumberland easier. r and manganiferous, there is more doing. Emerystone firm qualities; No. 1 lump, £5. 10s. to £6.; smalls, £5. 10s. Fullers' earth quiet; best lump, 55s.; fine le ground, £7.; "Emerald" ground, 80s. Scheelite, tungstate of soda, and tungsten metal firm: good inquiry. ıre: No change. Antimony ore and metal continue quiet; etter. Asbestos very firm. Potters' lead ore, smalls, to £11. 10s. Calamine quiet. Strontia sulphate (celestine) Limespar steady, especially for English manufactured; old rand in demand at 50s. (ground). Felspar quiet. Fluorspar: ity scarce. Ferro-manganese somewhat easier, but prices are d. Plumbago more doing. Spanish, £5.; best Ceylon lump uotations; Italian and Bohemian, £4. to £12. per ton. rs," £5. to £6.; Blackwell's "Mineraline," £10. French . to 22s. 6d. Ground mica, £45. to £50. China clay steady; 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. ɔrn). Bog ore (oxide of iron) steady; finest quality 22s. to

## THE METAL MARKETS.

ɔON, WEDNESDAY.—Pig iron dull. Scotch warrants closed 10½d. cash. Middlesbrough 39s. 6d. cash, and Hematite cash. Copper dull: Chili bars, G.O.B.'s and G.M.B.'s £44. 3s. 9d. cash, and £44. 15s. to £45. 2s. 6d. three months. r: Straits closed at £93. 5s. to £93. 15s. cash, and £93. 5s. 15s. three months. Australian, £93. 15s. cash. English 96. 10s. Lead dull: Spanish, £10. 5s.; English, £10. 7s. 6d. 10s. Silesian spelter, ordinary, £21. 5s. Quicksilver d: first hands, £6. 15s., second hands, £6. 14s. *Copper* iet: Cape, 1$\frac{1}{16}$ to 1$\frac{11}{16}$; Copiapo, 2$\frac{3}{16}$ to 2$\frac{5}{16}$; Libiola, 2¾ ason and Barry, 2½ to 2⅝; Rio Tinto, 14$\frac{15}{16}$ to 15$\frac{1}{16}$; 4½ to 4⅝; Namaqua, ¾ to 1; Panulcillo, ⅜ to ½.

VERHAMPTON, WEDNESDAY.—Business steady in both pig ished. Some crude iron agents decline to book forward. pigs, 38s.; all-mine hot blast, 63s to 65s.; Derbyshires, ncolnshires, 47s. 6d.; Northamptons, 45s.; Welsh hematites , 49s. 6d. to 50s.; marked bars, £8.; medium, £7.; common, 6. 5s.; plain sheets slightly better at £6. 17s. 6d. to £7. for 7. 5s. for doubles, and £8. for lattens; hoop, £6. 12s. 6d.

GOW, WEDNESDAY.—Market steady, with small business. one at 42s. and 41s 11d. cash, also at 42s. 1½d. one month; ith buyers at 41s 10½d. cash, and 42s. 1d. one month, sellers 11. cash, and 42s. 2d. one month. Middlesbrough closes ers at 39s. 6d. cash, sellers ask 39s. 9d. Hematite closes ers at 49s. 3d. cash, sellers ask 50s.

## VERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

—Palm oil is steady with a fair demand. Prices are lower l. Considerable sales have been effected during the week, ices being Lagos, £20. 10s.; Cameroon, £19.; Accra, . 6d.; and Salt Pond, £18. 15s. Olive is steadily held, and uence business is restricted. Prices remain firm, £32. 10s. to tun. Neapolitan is offered at £36. and Candia, £35. In ɔrices are very steady at last week's quotations, and to-day the is better. Cottonseed: Liverpool refined is still on the nd is now quoted 19s. per cwt. at which it is quiet. American ; at 21s. to 24s. according to quality. Castor oil has been iet. Good seconds Calcutta is selling at 2$\frac{7}{16}$ quay and 2½ ex t is rather slow. 2$\frac{11}{16}$d. per lb. is still value for first pressure In tallow the few sales made, have been done at 22s to for North according to quality, and 27s. per cwt. for South ı, but the business passing is very small. Resin, common, m 3s. 9d to 3s. 10½d. the demand being moderate, but the uctuates a great deal. Spirits of turpentine though quoted o 22s. 6d. at first, advanced to 22s. 6d. at the beginning of , and remains steady thereat. Petroleum: Both American ian refined continue at last week's quotation.

ɔURS.—No change. Ochres: Oxfordshire, common, £10., £12., best, £15.; Derbyshire, common, 40s., medium, 50s., . Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, ire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to hite lead, red lead, and oxide of zinc unchanged. Venetian 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. iron: common, £6.; medium, £10.; finest, £20.

## MISCELLANEOUS CHEMICAL MARKET.

The demand continues fairly steady for all products of the alkali trade, and there are no changes in values to record for the past week. Bleaching powder has been in more active demand of late, and price remains at £7. 10s, nett, f.o.r. makers' works, with the usual slight concession for contracts. Spot values for caustic soda are, f.o.b. Tyne, 77%, £11. 15s.; f.o.b. Liverpool, 74%, £11. 5s.; 70%, £10. 5s.; 60%, £9 2s. 6d.; cream, 60%, £8. 17s. 6d., in 10 ton lots and upwards. In soda ash there is no lack of activity, and prices for near deliveries are steadily maintained within the limits of 1$\frac{5}{16}$d. to 1⅜d. per degree, f.o.b. Liverpool and Tyne. For forward contracts the tendency is rather, if anything, in buyers' favour. Soda crystals and bicarbonate are without change. Chlorate of potash, still at 6½d. to 6¾d. Chlorate of soda, 7¾d. to 8d. Recovered sulphur, on rails, makers' works, £4. 15s. per ton. Nitrate of soda is firmer on the spot, and is quoted at advanced rates for forward delivery. Sulphate of copper is without improvement in demand and spot values are £14. 17s. 6d. to £15. per ton, f.o.b. Brown and grey acetates of lime have rather a firmer tendency. Acetate of soda firm at the advance. White acetate of lead is slightly lower in price. For white powdered arsenic, there is a strong demand at £12 to £12. 5s. nett f.o.r. Sulphocyanides still quiet. Prussiate of potash continues to find ready sale at full prices. Potash, caustic and carbonate, are in fair demand and business being done for forward delivery—prices unaltered.

## TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are in fairly good demand, with rather better enquiry for caustic soda. Bleaching powder is now almost sold up to the end of September, and is firm at £7. 10s. to £7. 12s. 6d.

Bleaching powder, softs, £7. 10s. to £7. 12s. 6d. per ton nett, and hards, £7. 15s. to £7. 17s. 6d. per ton; caustic soda, 77/76%, £11. 15s. per ton nett, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £4. 17s. 6d. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; in 10 ton lots; silicate of soda, 75° Tw. £3. per ton, 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per ton; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 7d. per lb. less 6%; pearl hardening, £3. 10s. per ton nett; pure white sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta crystals, £19. per ton; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; hydrate of barium, £11. per ton.

South Durham salt unchanged, 9s. 6d. to 10s. per ton, f.o.b. Tees.

Coals: A good demand prevails for best steam and gas coal, but apart from these qualities trade is quiet. Best Northumbrian steam, 10s. 6d. per ton, f.o.b.; best Durham gas, 8s. 6d. to 9s. per ton, f.o.b. Coke varies in value, about 16s. per ton, f.o.b., being medium price.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

At last week's meeting of the Scottish Mineral Oil Association, the agreement governing the sale of burning oil was finally confirmed. There is no change, and the prices and conditions will stand as given below, for certain, up to August, 1893. The makers have already begun to book contracts against the needs of consumers for the coming winter, but some of the latter are inclined to hold back a little, on the off chance of the Russian article proving to be procurable at lower terms. In the other paraffins there is no new feature, and scale and wax still accumulate on makers' hands. Paraffin spirit (naphtha) will be increased to 7d. per gallon, at the end of this month.

On this market sulphate of ammonia shows not the slightest glimpse of improvement, and nothing better can be said about it to-day than was stated in this report a week ago.

In the general chemicals there is nothing new to report, and the feeling remains very indifferent and the demand exceedingly feeble. To this, however, bleaching powder is again the exception, the production being fully taken up, and price, if anything, firmer.

Chief prices current are:—Soda crystals, £2. 17s. 6d., nett Tyne; alum in lump, £5. 10s., nett Glasgow; soda ash, 1⅜d., less 2½%, Tyne; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool;

bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. nett Liverpool; refined alkali, 1⅝d., less 2½% Tyne; bleaching powder, £7. 10s. to £7. 12s. 6d. nett Tyne; saltcake, 36s. 6d.; borax, English refined, £29., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 6½d., less 5% any port; nitrate of soda, 8s 4½d; sulphate of ammonia, £9. 15s. f.o b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £15. less 5% Liverpool; paraffin scale (hard), 2$\frac{11}{16}$d., and soft 2$\frac{5}{16}$d. to 3d. per lb.; paraffin wax, 120°, semi-refined, 3⅝d. to 4d.; paraffin spirit (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales about 1d. lower); ditto (lubricating), 865°, £3. 5s. to £3. 15s., 885°, £4. 10s. to £6., and 890/895°, £5. to £7. Week's imports of raw sugar at Greenock were 10,447 bags.

# New Companies.

Capon, Heaton and Co., Limited.—This company was registered on the 5th inst., with a capital of £20,000., in £10. shares, to acquire, take over as a going concern, and carry on the business of indiarubber and guttapercha manufacturers, carried on by Messrs. H. Heaton, jun., and E. G. Capon, under the firm of "Capon, Heaton and Co.," at Lifford Mill, King's Norton, Worcester. The subscribers are:

| | Shares. |
|---|---|
| H. Heaton, jun., Bromsgrove, manufacturer | 1 |
| A. Baker, The Bracken, Augustus-road, Edgbaston | 1 |
| H. Heaton, Harborne House, Birmingham | 1 |
| J. W. Boothroyd, 122, Wilberforce-road, Finsbury Park, N. | 1 |
| J. Armitage, Alta Vista, Torquay | 1 |
| R. A. Pinsent, Selly Wick, Birmingham, solicitor | 1 |
| J. H. Rice, 105, Albert-road, Aston, Birmingham, clerk | 1 |

Ford Paper Works, Limited.—This company was registered on the 4th inst., with a capital of £100,000., divided into 600 ordinary shares of £100. each, 10,000 redeemable shares of £1. each, and 30,000 redeemable preference shares of £1 each; to acquire and take over as a going concern the undertaking and assets of the "Ford Works Co., Limited" (incorporated in 1864); to enter into the agreement referred to in clause 3 of the articles, and to carry on the business of paper and paper-pulp manufacturers stationers, envelope manufacturers, account-book manufacturers, cardboard manufacturers, etc. The subscribers are:—

| | Shares. |
|---|---|
| G. Chater, Lovehill House, Langley, Berks | 1 |
| F. P. Barlow, 65, Old Bailey, paper manufacturer | 1 |
| T. M. Dunster, 202, Upper Thames-street, E.C., paper agent | 1 |
| T. B. Barker, Westoe, South Shields | 1 |
| J. P. Cornett, Hylton, near Sunderland | 1 |
| F. T. P. Barlow, Lynchmere, Haslemere, Surrey | 1 |
| R. Benijon, Englefield House, Reading | 1 |

Frederick N. Turney and Co., Limited.—This company was registered on the 8th inst., and consists of not more than 100 members, each of whom in the vent of winding-up is liable for £1. The objects are to acquire, develop, and turn to account certain patents, particulars of which are not given; to carry on the business of extracting grease from skins and hides of all kinds; to buy, sell, split, degrease, purify, tan, prepare for market, manufacture and deal in skins, hides, and skivers, and to carry on the business of chemists, druggists, bleachers, dyers, cleaners, mechanical engineers, and manufacturers of machinery connected with the preparation of leather. The members are:—

| | Holdings. |
|---|---|
| F. N. Turney, Sherwood Rise, Nottingham | 662 |
| T. Leman, St. Peter's Church Walk, Nottingham | 333 |
| R. Sands, 5, Baker-street, Nottingham | 1 |
| C. M. Leman, The Park, Nottingham | 1 |
| T. C. Leman, The Park, Nottingham | 1 |
| H. M. Leman, Magdalene Cottage, Cambridge | 1 |
| J. J. Taylor, 18, Cromwell-street, Nottingham | 1 |

Wallis Chlorine Syndicate, Limited.—Registered on 10th inst, with a capital of £75,000., in £1. shares. Objects: To acquire all the patents and other privileges to be issued in the United Kingdom or any colony, dependency, or foreign country for protecting and working a process invented by H. W. Wallis, for the production of chlorine, nitric, and sulphuric acids, bleaching powder, and other substances, according to provisional specifications granted for the United Kingdom, and with a view to the above objects to adopt and carry into effect an agreement made 29th July between H. W. Wallis of the one part and H. T. G. Marston, on behalf of this company, of the other part. Generally to carry on business as manufacturers of and dealers in chlorine, nitric acid, sulphuric acid, etc. The first subscribers are:—

| | Shares. |
|---|---|
| H. W. Appleby, 23, Quested-buildings, Brett-road, Hackney | 1 |
| T. H. Robinson, 16, Ockenden-road, N. | 1 |
| A. E. Way, 3, Crosby-square, E.C. | 1 |
| R. Morford, Ashcroft, Staines | 1 |
| W. F. Robinson, 38, Baxter-road, N. | 1 |
| W. Parkins, 46, Hempstall-road, W., Hampstead | 1 |
| A. E. Hill, 41, Baxter-road, N. | 1 |

Imperial Oil Co., Limited.—This company was registered on the 9th inst., with a capital of £500,000, in £10. shares, to carry on the business of merchants and dealers in petroleum burning oil not giving off inflammable vapour under 73° or over 120°, Abel test. The subscribers are:—

| | Shares. |
|---|---|
| J. B. G. Gallini, Great Suffolk-street, Southwark, oil merchant | 1 |
| S. M. Osmond, Great Suffolk-street, Southwark, oil merchant | 1 |
| M. Matthews, 32, Queen Victoria-street, E.C., solicitor | 1 |
| M. C. Matthews, 32, Queen Victoria-street, E.C., solicitor | 1 |
| W. H. Gray, 104, Penton-place, E., clerk | 1 |
| M. Osmond, 60, Fenchurch-street, E.C., wine merchant | 1 |
| G. R. Tolley, 87, Lothian-road, North Brixton, S.W. | 1 |

John Thompson, Limited.—This company was registered on the 10th inst., with a capital of £25,000., in £5. shares, to acquire, take over as a going concern, and carry on the business of wholesale and retail chemist and druggist, oil and colourman, etc., carried on by Mr. J. Thompson, at 58, Hanover-street, Liverpool, and with a view thereto to enter into an agreement with the said Mr. J. Thompson. The subscribers are:—

| | Shares. |
|---|---|
| J. Thompson, Beech-villa, Grassendale Park, Liverpool | 1 |
| C. Blood, Formby, Lancs. | 1 |
| I. J. Nicholson, Tarbock-road, Huyton, Lancs. | 1 |
| W. P. Lake, 11, Olive Mount, Higher Tranmere, Birkenhead | 1 |
| W. Wilson, 8, Broadbelt-street, Walton, Liverpool | 1 |
| J. Logan, 28, Underley-street, Liverpool | 1 |
| G. H. Burroughs, 29, Christchurch-road, Birkenhead | 1 |

Match Manufacturing Co., Limited.—This company was registered on the 6th inst., with a capital of £25,000., in £1. shares, to acquire lands and buildings in South Wales, or elsewhere, to carry on the business of match manufacturers or importers, cardboard and paper manufacturers, box manufacturers, etc., and to enter into the following agreements: (1) with Mr. W. W. Lewis. (2) with Messrs. W. W. Lewis and T. H. Lewis, (3) between the company and Messrs. W. W. and T. H. Lewis, and (4) between the company and Mr. W. McLay. The subscribers are:

| | Shares. |
|---|---|
| W. Watkins, 133, Craddock-street, Cardiff | 1 |
| H. Cambridge, Mount Stewart-square, Cardiff | 1 |
| T. H. Lewis, 88, Bishopsgate-street, Within, E.C. | 1 |
| O. Walkey, Western Mail Buildings, Cardiff | 1 |
| R. J. Morgan, Westminster Chambers, Cardiff | 1 |
| S. H. Jones, Llangwn-place, Whitchurch | 1 |
| W. R. Edmunds, Cardiff, solicitor | 1 |

United Electric Sewage and Chemical Syndicate, Limited.—This company was registered on the 5th inst., with a capital of £5,000., in £1. shares, to acquire, develop, and turn to account the British, foreign, and colonial patents and rights of Mr. W. Walker, of 132, Adelaide-road, N.W., for and in his invention (No. 14,039 of 1892) of "an improved process and apparatus for the purification of sewage and the production of alkalies, chlorine, ferric chloride, and electric energy."

Victoria Regenerative Smoke Consumer, Limited.—This company was registered on the 5th inst, with a capital of £20,000., in £10. shares, to enter into and carry into effect an agreement (the particulars of which are not mentioned) for the acquisition of certain letters patent granted to H. Walker for "Improvements in and connected with steam boiler and other heating, melting, and smelting furnaces, muffles and the like for various purposes," and for "Improvements in or additions to steam boiler and other furnaces," and to develop and turn to account the said inventions. The subscribers are:—

| | Shares. |
|---|---|
| H. E. Maynard, Griffins Brook House, Selly Oak, Worcester | 1 |
| J. B. Waring, 11, Belvoir-street, Leicester, solicitor | 1 |
| J. Lockwood, 10, Horsefair-street, Leicester, agent | 1 |
| C. Shadlow, 2, New-street, Leicester, clerk | 1 |
| T. Read, Maney Lodge, Sutton Coldfield | 1 |
| H. W. Maynard, Griffins Brook House, Selly Oak | 1 |
| H. Walker, 8, Villa-road, Handsworth | 1 |

William Levett and Co., Limited.—This company was registered on the 4th inst, with a capital of £10,000., in £10. shares, to adopt and carry into effect an agreement dated July 27, 1892, between G. Burge of the first part, the said G. Burge and W. C. Hanley of the second part, and P. C. de St. Croix (for the company) of the third part, for the purchase of the Beehive Cement Works at Frindsbury, near Rochester, and the Elmley Cement Works at Elmley Ferry, near Sittingbourne, Kent, and to carry on the business of cement manufacturers in all its branches. The subscribers are:—

| | Shares. |
|---|---|
| J. B. Suchlick, Connaught Mansions, Victoria-street, S.W. | 1 |
| H. W. Forge, Park House, Ifield, near Crawley | 1 |
| C. J. Fox, 41, Eastcheap, E.C., merchant | 1 |
| G. E. H. Pearse, 41, Eastcheap, E.C., merchant | 1 |
| G. Burge, Rochester, cement manufacturer | 1 |
| W. C. Hanley, Lloyd's, E.C., cement manufacturer | 1 |
| P. C. de St. Croix, 23, Grange-road, Ealing | 1 |

# The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

## APPLICATIONS FOR LETTERS PATENT.

**Filters.** W. Marriott. 13,927. August 2.

**Improvements in the Manufacture of Steel.** T. Hampton. 13,933. Aug. 2.

**Improvements in Apparatus for the Manufacture of Coal Gas.** J. W. Buckley and J. H. Buckley. 13 956. August 2.

**Skimming Molten Metal in Tinning Apparatus.** D. Jones and B. Jones. 13,960. August 2.

**Process for Purifying Sewage and Production of Alkalies, Chlorine, Ferric Chloride, and Electric Energy.** W. Walker. 14,039. August 3.
**Cutting Soap.** C. Wheen and T. Brown. 14,045. August 3.
**Regulating the Flow of Volatile Liquid in Refrigerating Machines.** T. B. Lightfoot. 14,047. August 3.
**Obtaining Alkali, Carbonates and "Blanc Fixe" from Witherite and the Corresponding Alkali Sulphates.** E. Ulrichs. 14,051. August 3.
**Manufacture of a White Pigment.** E. Ulrichs. 14,052. August 3.
**Manufacture of White Paint.** E. Ulrichs. 14,053. August 3.
**Dry Batteries.** C C. Lesenberg and J. von der Poppenburg. 14,089. Aug. 4.
**Separation of Wool Wax from Wool Fat.** R. Haddan. 14,114. August 4.
**Regulating the Heat of Dye Vats.** J. Dawson. 14,144. August 5.
**Production of Dioxyhaphtoe-Mono-Sulpho Acid and its Salts.** O. Imray. 14,161. August 5.
**Manufacture of Coke and Recovery of Tar Products.** J. Bowing. 14,174. August 5.
**Improved Sewage Purification and Filtration Material.** C. E. Bell. 14,175. August 5.
**Electric Batteries.** J. L. Dobell. 14,180. August 5.
**Manufacture of Copper.** T. Twynam. 14,223. August 6.
**Cleaning Bleaching Kiers.** W. Waengler. 14,230. August 6.
**Secondary Batteries.** S. A. Rosenthal and V. C. Doubleday. 14,250. Aug. 6.
**Production of Azo Colouring Matters.** O. Imray. 14,253. August 6.

# Gazette Notices.

## PARTNERSHIPS DISSOLVED.

J. Hardman, J. J. Holden, and G. H. Holden, under the style of Hardman and Holdens, Newton Heath, near Manchester, manufacturers of alizarine and coal carbonizers.

J. Hardman and J. J. Holden, under the style of Hardman and Co., Newton Heath, Clayton, and Bradford, near Manchester, and Blackburn, tar distillers and chemical manufacturers.

J. C. Goodall and H. Armstrong, under the style of J. C. Goodall and Co., Cardiff, oil merchants, and grease manufacturers and merchants.

S. Lowndes and H. Finch, under the style of the Marple Chemical Co., Marple chemical manufacturers.

Graham and Sperryn, Aston Tube Works, Birmingham, as far as regards J. N. Sperryn.

## BANKRUPTCY ACTS, 1883 and 1890.

### Receiving Order.

Wise, Joseph Norman, Durham, chemist and druggist.

### Adjudication.

Martin, Alfred George Edmund (described in the Receiving Order as George E. Martin and trading as George E. Martin and Co.), Fenchurch-street, City and Hoe-street, Walthamstow, importer of essential oils.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending August 6th.*

**Acetic Acid—**
Holland, 40 pkgs. Phillipps & Graves
" 71 A. & M. Zimmermann

**Alkali—**
France, 108 c. Arnati & Harrison

**Alum—**
Holland, 37 pkgs. Ohlenschlager Bros.

**Ammonium Chloride—**
Holland, 10 pkgs. H. Lorenz

**Ammonium Nitrate—**
Germany, 1 pkg. Petri Bros.

**Antimony—**
Turkey, 50 t. Quirk, Barton, & Co.
Portugal, 61 J. Bamber
France, 10 c. F. Smith
" 1 B. & F. Wf. Co., Ltd.
Portugal, 37 Merchant Banking Co.
Italy, 50 Novelli & Co.

**Asbestos—**
U. States, £600 Bell's Asbestos Co.
Germany, 35 Phillipps & Graves
U. States, 340 W. Bifford

**Barium Chloride—**
Germany, 24 pkgs. Petri Bros.

**Barytes—**
Belgium, 21 cks. A. Zumbeck & Co.
" 21 W. Harrison & Co.
Germany, 19 S. H. Willoughby
" 67 W. Harrison & Co.

**Boracic Acid—**
Italy, 5 pkgs. Italo-Brit. S. N. Co.

**Caoutchouc—**
Germany, 16 c. T. H. Lee
Africa, 9 Prop. Sun Wh.
France, 35 Lewis & Peat
Singapore, 294 L. & I. D. Jt. Co.
U. States, 70 Prop. Bull Wf.
Singapore, 205 Huttenbach & Co.

**Caustic Potash—**
France, 25 pkgs. Spies Bros & Co.
Germany, 9 cks. Beresford & Co.
France, 60 c. J. A. Reid

**Caustic Soda—**
Belgium, 9 c. Beresford & Co.

**Chemicals** *(otherwise undescribed)*
Germany, £8 2 pkgs. L. & I. D. Jt. Co.
11 Phillipps & Graves
7 Hernu, Peron, & Co.
20 F. Stahlschmidt & Co
Germany, 92 A. & M. Zimmermann
" 89 T. H. Lee
Italy, 5 M. D Co
E. Indies, 7 R. Thompson

**Copperas—**
Germany, 31 pkgs. B. & N. Wf. Co., Ltd.

**Copper Sulphate—**
Germany, 34 cks. Charles & Fox

**Cream of Tartar—**
France, 10 pkgs. B. & F. Wf. Co., Ltd.
Holland, 12 "
Spain, 6 W. C. Bacon & Co.
France, 18 "
" 4 Ross & Deering
" 9 E. W. Carling & Co.
Italy, 16 B. Jacob & Sons
France, 2 G. Ward & Sons
Holland, 22 Middleton & Co.

**Dyestuffs—**

**Aniline**
Holland, 12 pkgs. Elkan & Co.
" 12 J. Owen

**Annatto**
France, 3 pkgs. B. & N. Wf. Co., Ltd.

**Argols**
Holland, 20 pkgs. Williams, Torrey, & Co., Ltd

**Cochineal**
Canaries, 7 pkgs. Swanston & Co.
" 23 G. S. Bruce
" 2 Johnson, Hicks, & Co.

**Divi Divi**
Trinidad, 132 pkgs. Culverwell, Brooks, & Co.

**Extracts**
France, 50 pkgs. Prop. Chmbln.'s Wf.
Belgium, 170 L. J. Levinstein & Co.
Denmark, 6 M. D. Co.
" 50 J. Forsey
Canada, 80 A J. Humphrey
U. States, 50 W. Burton & Sons

**Gambier**
Singapore, 172 pkgs. Beresford & Co.

**Indigo**
Holland, 68 cs Phillipps & Graves
E. Indies, 7 chts W. Brandts, Son, & Co.
" 7 Arbuthnot, Latham, & Co.
" 10 Benecke, Souchay, & Co.

**Madder**
Holland, 1 pkg. Anderson, Anderson, & Co.

**Myrabolams**
E. Indies, 42 pkgs. E Davis & Co.

**Naphthalene**
Germany, 32 pkgs. Fleming's Oil Co.

**Sumac**
France, 15 pkgs. T. Trapp & Sons
A. Turkey, 130 J. W. Drysdale & Co.
Italy, 500 J. Kitchin, Ltd.
" 50 W. Shelcott
" 50 Beresford & Co.

**Tanners' Bark**
Natal, 131 t. A. & W. Nesbitt
" 44 Boutcher, Mortimore, & Co.
" 5 Staley, Radford, & Co.
Jamaica, 9 Park, Macfadyen. & Co.
Natal, 2 R. G. Hall & Co.

**Turmeric**
Cochin, 248 pkgs. Elkan & Co.

**Valonia**
A. Turkey, 12 t. J. Graves
" 50 A. & W. Nesbitt

**Dyestuffs** *(otherwise undescribed)*
France, 1 pkg. Hernu, Peron, & Co.
Canaries, 14 Forwood, Bros., & Co.

**Farina—**
Holland, 100 pkgs. R. G. Hall & Co.
" 20 Prop. Chmbln's. Wf.
Germany, 200 R. G. Hall & Co.
France, 5 Elder & Heim

**French Chalk—**
France, £16 Hernu, Peron, & Co.
Italy, 50 W. Harrison & Co.

**Glucose—**
U. States, 250 pkgs. 1,375 c. Prop. Chmbln.'s Wf.
" 125 250 c. L. & I. D Jt. Co.
" 500 500 Humphrey & Co.
" 500 500 Barrett, Tagant, & Co.
" 550 800 Union L. Co., Ltd.
Holland, 6 41 J. Knill & Co.
France, 250 250 H. Cole
" 200 200 Barrett, Tagant, & Co.
U. States, 250 250 L. Sutro & Co.
" 50 285 Pillow, Jones, & Co.
" 2,820 3,929 R. G. Hall & Co.
" 500 500 J. Knill & Co.
" 650 650 J. Barber & Co.
Holland, 100 100 Prop. Sun Wf.

**Glycerine—**
Holland, 265 Spies Bros. & Co.
Germany, 125 Barr, Moering, & Co.
France, 480 Ross & Deering
" 115 H. Hill & Sons
Germany, 125 T. Palmer
Holland, 60 J Owen
France, £160 N S. S. Co., Ld.
Germany, 120 Beresford & Co.
" 39 Ellis, Kislingbury, & Co.

**Manganese—**
Japan, 10 t. R. Warner & Co., Ld.

**Mica—**
Adelaide, £12 W. M. Smith & Sons

**Ochre—**
France, 7 cks. W. Harrison & Co.
" 200 G. Ward & Sons
" 1 pkg. J. L. Lyon & Co.
Holland, 24 Phillipps & Graves

**Painters' Colours—**
Germany, 13 pkgs. L. & I. D. Jt. Co.
" 29 Phillipps & Graves
" 10 T. H Lee
" 45 cks. Spies Bros & Co.
U. States, 70 brls. London P. D. Co.
" 2 pkgs. Williams, Torrey, & Co, Ltd.
Holland, 6 Phillipps & Graves
Belgium, 8 T. Palmer
Germany, 4 cks. A. Zumbeck & Co.
France, 9 pkgs. Flageollet & Co.
Germany, 15 C. S. Lovell

**Paraffin Wax—**
U. States, 100 brls. C. Ogleby & Co.
" 976 J. H. Usmar & Co.

**Phosphate Rock—**
Holland, 200 t. D. de Pass & Co.
" 100 Anglo-Contl. G. Wks.
Belgium, 200 A. Hunter & Co.
Germany, 11 T. H. Lee

**Pitch—**
Archangel, 500 cks. Linck, Moeller, & Co.

**Plumbago—**
Germany, 37 cks. B. Gallaway
" 18 Fellows & Co.

**Potash—**
Germany, 10 pkgs. L. & I. D. Jt. Co.
Italy, 5 Italo-Brit. S. N. Co.

**Potassium Bicarbonate—**
Holland, 8 cks. A. & M. Zimmermann

**Potassium Carbonate—**
France, 10 c. J. A. Reid

**Potassium Muriate—**
Germany, 20 pkgs. H. Lambert

**Potassium Sulphate—**
Belgium, 73 pkgs. F. W. Berk & Co., Ltd.

**Pyrites—**
Spain, 2,081 t. C. Tennant, Sons, & Co.
Portugal, 930 Mason & Barry, Ltd
Spain, 600 Societe Commerciale

**Rosin—**
U. States, 1,000 brls. J. Knight & Son
" 600 Moore & Hole
" 300 J. Nutter & Co.

**Saltpetre—**
Germany, 3 cks. Craven & Co.
" 63 J. Hall & Son
E. Indies, 1,588 bgs. Lucas & Spencer's Wf.
" 972 Ralli Bros.
Germany, 58 P. Hecker & Co.

**Sodium Hyposulphite—**
Germany, 181 pkgs. F. Boehm

**Stearine—**
Bengal, 27 bgs. H. Hill & Sons
France, 209 Beresford & Co.
Belgium, 330 H. Hills & Sons

**Sulphur—**
France, 2 t. Mosenthal, Sons & Co.

**Sulphuric Acid—**
Holland, 20 pkgs. T. Palmer

**Talc—**
France, £40 G. G. Blackwell

**Tallow—**
Germany, 14 cks. Elkan & Co.
Canada, 18 R. Tucker & Co.
Sydney, 20 Aust. Meat Co.
Queensland, 443 "
" 36 D. J. Keymer & Co.
" 100 Cuthbert & Hall
Holland, 4 H. Gosschalk
Belgium, 1 G. Haller & Co.

**Tallow and Stearine—**
U. States, 11 cks. Allan Brs. & Co.

**Tar—**
N. Russia, 3,214 brls. Linck, Moeller & Co.

**Tartaric Acid—**
Spain, 2 pkgs. B. & F. Wf. Co., Ltd.
Holland, 10 Middleton & Co.

**Turpentine—**
Savannah, 1,363 brls. Nickoll & Knight
" 3,034 Prod. Brokers' Co., Ltd.

**Ultramarine—**
Holland, 28 cks. Thames S. T. & L. Co., Ld.
Belgium, 24 brls. Leach & Co.
Holland, 10 C. J. Capes & Co.
" 1 ck. Phillipps & Graves
" 5 cs. Hernu, Peron & Co.
Belgium, 50 Union Lightrge. Co., Ld.

**Varnish—**
U. States, 29 pkgs. Pinchen, Johnson & Co.
Belgium, 10 Stobbs, Wilson & Co.

**Verdigris—**
France, 4 pkgs. B. & F. Wf. Co., Ltd.

**White Lead—**
Germany, 19 cks. Magee, Taylor, & Co.
" 11 Randall Brs.
Belgium, 2 Leach & Co
Holland, 4 Stobbs, Wilson & Co.
" 58 Phillipps & Graves
" 3 O'Hara, Matthews & Co.
Germany, 12 H. Lambert
" 20 W. Croft
Holland, 14 Spies Brs. & Co.

**Zinc Oxide—**
Holland, 20 brls. M. Ashby, Ltd.

## LIVERPOOL.

*Week ending August 4th.*

**Aluminium—**
New York, 5 pkgs. Pickford & Co.

**Ammonium Carbonate—**
Havre, 10 cks. Cunard S. S. Co., Ld.

**Antimony Salts—**
In transit, 5 kgs.

**Asbestos—**
Montreal, 500 bgs. Irvin Hopper

**Barytes—**
Rotterdam, 133 cks.

**Boracic Acid—**
Leghorn, 39 cks.
Hamburg, 1 brl.

**Caoutchouc—**
Genoa, 21 cs.

**Colours—**
Havre, 48 pkgs. Cunard S. S. Co., Ld.
Rotterdam, 17 cks. 21 cs.

**Cream of Tartar—**
Tarragona, 2 pps.
Rotterdam, 2 cks.

**Dyestuffs—**
**Algorabilla**
Valparaiso, 100 bgs. F. C. Walter & Co.
" 14 Palasse & Leste
**Argols**
Lisbon, 28 cks. German Bk. of London
Bordeaux, 34
**Extracts**
New York, 43 kgs. A. J. White
Philadelphia, 25 brls.
Bordeaux, 400 cks.
Baltimore, 20
Antwerp, 3 5 J. T. Fletcher & Co.
" 10
**Indigo**
Havre, 2 chts. Cunard S. S. Co., Ld.
**Sumac**
Palermo, 585 bgs.

**Glucose—**
New York, 150 brls. T M. Duche & Sons
" 350
Dunkirk, 200 bgs.
Rotterdam, 12 kgs.

**Guano—**
Mona Island, 386,000 kilos. T. Schmidt

**Iodine—**
Valparaiso, 22 brls.

**Lead Acetate—**
Rotterdam, 40 cks.

**Magnesia—**
Havre, 160 pkgs. Cunard S. S. Co., Ld.

**Ochre—**
Bordeaux, 34 cks.
Rouen, 20 R. J. Francis & Co.

**Paint—**
Boston, 2 cs. A. E. Loane
Rotterdam, 129 cks.

**Phosphate—**
Montreal, 395 t.

**Phosphate Rock—**
Beaufort, S. C., 2,348 t. Phospho Guano Co.

**Pitch—**
Dunkirk, 13 cks.

**Potash—**
Dunkirk, 22 cks.

**Pyrites—**
Huelva, 2,003 t. Matheson & Co.

**Rosin—**
New York, 217 brls.
Bayonne, 1,764 cks.
Brunswick, 2,254
Baltimore, 914

**Saltpetre—**
Hamburg, 50 brls. 2 cks.

**Soap—**
New York, 353 brls.
Philadelphia, 5 cs. S. Maw, Son & Thompson
Leghorn, 400 bxs. Weavey & Sterry
" 20
Naples, 149 T. Behrends
New Orleans, 1,926 bls.

**Stearine—**
Antwerp, 13 bgs.
Rotterdam, 20

**Sulphur—**
Catania, 100 bgs. 234 brls.
Huelva, 1,446 t. Matheson & Co.

**Tallow—**
New York, 48 hds. 235 tcs.
Philadelphia, 120 Richardson, Spence & Co.
" 26 280
Baltimore 150 brls.
Boston, 67 80
Rouen, 31 cks. R. J. Francis & Co.

**Tartar—**
Bordeaux, 3 cks.

**Tartaric Acid—**
Rotterdam, 27 cks.

**Tin Oxalate—**
Rotterdam, 2 cs.

**Ultramarine—**
Rotterdam, 4 cks. 27 cs.

**Varnish—**
Boston, 1 brl. Green & Whineray

**Verdigris—**
Bordeaux, 4 cks.

**Waste Salt—**
Hamburg, 500 bgs.

**Zinc Oxide—**
Rotterdam, 10 cks.

## HULL.

*Week ending August 6th.*

**Acid—**
Rotterdam, 7 cks. G. Lawson & Sons
Hamburg, 5 Wilson, Sons, & Co., Ld.

**Alkali—**
Flushing, 4 cks. Zeeland S. S. Co.

**Arsenic—**
Hamburg, 19 cks. Wilson, Sons, & Co., Ld.

**Barytes—**
Bremen, 24 cks. Veltmann & Co.
" 29
Rotterdam, 24 Hanger, Watson & Harris

**Caoutchouc—**
Hamburg, 11 cs. C. M. Lofthouse & Co.

**Chemicals** (*otherwise undescribed.*)
New York, 800 bgs. Wilson, Sons, & Co., Ld.
Stettin, 34 cks. "
Dunkirk, 92 pks. "

**Colours—**
Danzig, 27 cks. Wilson, Sons, & Co., Ld.
Rotterdam, 4 pks. 2 cks. G. Lawson & Sons
Flushing, 178 27 8 cs. Zeeland S. S. Co.
Bremen, 6 cks. Veltmann & Co.
" 28 Sissons Bros. & Co.
Rotterdam, 1 A. Sanderson & Co.
Hamburg, 2 Wilson, Sons, & Co., Ld.
Antwerp, 4 20 pks. "
" 55
Rotterdam, 8 21 3 cs. W. & C. L. Ringrose
Hamburg, 21

**Cryolite—**
New York, 429 bgs.

**Dyestuffs—**
**Alizarine**
Rotterdam, 10 pks. W. & C. L. Ringrose
**Aniline**
Flushing, 2 cks. Zeeland S. S. Co.
**Indigo**
Hamburg, 3 cs. Wilson, Sons, & Co., Ld.
**Madder**
Rotterdam, 2 cks.

**Farina—**
Danzig, 122 sks. Wilson, Sons, & Co., Ld.
Harlingen, 30 bgs. W. & C. L. Ringrose

**Glucose—**
New York, 99 bls.

**Glycerine—**
Rotterdam, 1 dm. 2 ballns. 2

**Ochre—**
Rouen, 41 cks. Rawson & Robinson

**Paint—**
Boston, 10 cs. 33 pkgs. Wilson, Sons, & Co., Ld.
Christiania, 3
Amsterdam, 14 cks. W. & C. L. Ringrose

**Potash—**
Rotterdam, 42 cks. G. Lawson & Sons

**Rosin—**
Stettin, 5 cs.
Hamburg, 4 cks. Wilson, Sons, & Co., Ld.

**Soda—**
Rotterdam, 28 cks. Hutchinson & Son
" 130 Reckitt & Sons

**Sodium Nitrate—**
Hamburg, 50 kgs. Wilson, Sons, & Co., Ld.

**Stearine—**
Antwerp, 17 bgs. Wilson, Sons, & Co., Ld.

**Tallow—**
N. York, 50 hds. 75 tcs. 200 brls. Wilson, Sons, & Co., Ld.
" 50

**Tartaric Acid—**
Rotterdam, 3 cks. W. & C. L. Ringrose

**Turpentine—**
Libau, 53 cks.

**Varnish—**
N. York, 3 cs. Wilson, Sons, & Co., Ld.

**White Lead—**
Rotterdam, 13 cks. Johnson Bros.
" 11 Gibson Bros.
Antwerp, 3 Bailey & Leetham
Rotterdam, 18 A. Sanderson & Co.
" 9 Sissons Bros. & Co.
" 45 Tudor & Sons
" 14 Hanger, Watson & Harris
" 20

## GLASGOW.

*Week ending August 11th.*

**Acetate of Lime—**
New York, 429 bgs.

**Alum—**
Hamburg, 36 cks.

**Asbestos—**
Montreal, 240 bgs. G. Gillespie & Co.

**Barytes—**
Rotterdam, 184 cks. J. Rankine & Son

**Barytes Sulphate—**
Antwerp, 400 bgs. 21 cks.

**Colours—**
Rotterdam, 10 cks. G. & J. Boyd
Antwerp, 1
Rotterdam, 1 1 bx. J. Rankine & Son

**Dyestuffs—**
**Alizarine**
Rotterdam, 44 cks.
**Extracts**
Antwerp, 26 cks.
**Indigo**
Rotterdam, 1 cs. J. Rankine & Son

**Farina—**
Rotterdam, 100 bgs. J. Rankine & Son

**Glucose—**
New York, 300 brls.

**Pitch—**
Archangel, 500 brls. Young, Falconer, & Co.
" 300 M'Lean, Todd & Co.

**Pyrites—**
Huelva, qnty. Tharsis Co.

**Rosin—**
N. York, 1,800 brls.
Charlestown, S.C., 2,805 brls.

**Soap—**
N. York, 250 bxs.

**Tallow—**
N. York, 170 tcs.

**Tar—**
Archangel, 3,304 brls. Young, Falconer & Co.
" 1,455 M'Lean, Todd & Co.

**Tartar—**
Bordeaux, 2 cks.

**Waste Salt—**
Hamburg, 610 bgs.

**White Lead—**
Rotterdam, 10 cks. J. Rankine & Son
" 26

**Zinc Oxide—**
Rotterdam, 10 cks. J. Rankine & Son

**Zinc White—**
Rotterdam, 50 cks. J. Rankine & Son

## TYNE.

*Week ending August 6th.*

**Alum Earth—**
Hamburg, 18 cks. Tyne S. S. Co.

**Colours—**
Rotterdam, 3 cks. Tyne S. S. Co.

**Glycerine—**
Rotterdam, 8 cs. Tyne S. S. Co.

**Phosphate—**
Antwerp, 280 t.

**Sulphur—**
Pomaron, 1,010 t. Mason & Barry

**Zinc Oxide—**
Antwerp, 25 brls. 3 plts. Tyne S. S. Co.

## GOOLE.

*Week ending July 27th.*

**Alumina Sulphate—**
Rotterdam, 67 cks.

**Antimony Sulphate—**
Boulogne, 3 cks.

**Caoutchouc—**
Boulogne, 3 cks.

**Chemicals** (*otherwise undescribed*)
Boulogne, 2 cks.

**Dyestuffs—**
**Alizarine**
Rotterdam, 44 cks. 34 pkgs.
**Extracts**
Rotterdam, 5 brls.
Hamburg, 20 cks.
**Indigo**
Rotterdam, 29 chts.
**Madder**
Rotterdam, 6 cks.

**Dyestuffs** (*otherwise undescribed*)
Boulogne, 80 cks. 6 cs. 10 pkgs.

**Farina—**
Hamburg, 100 bgs.
Delfzyhl, 300
Rouen, 100

**Glucose—**
Rotterdam, 20 bgs.
Calais, 50
Dunkirk, 100

**Phosphate—**
Ghent, 816 bgs.

**Potash—**
Dunkirk, 90 dms. 37 cks.
Calais, 39 8 brls.

**Waste Salt—**
Hamburg, 812 cks. 200 bgs.

**Zinc Oxide—**
Antwerp, 10 brls.

## GRIMSBY.

*Week ending July 30th.*

**Caoutchouc—**
Hamburg, 27 pkgs.

**Chemicals** (*otherwise undescribed*)
Hamburg, 8 pkgs.

**Dyestuffs** (*otherwise undescribed*)
Dieppe, 15 cks.

**Farina—**
Hamburg, 100 bgs.

**Glycerine—**
Rotterdam, 6 pkgs.

**Zinc Ashes—**
Antwerp, 25 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending August 10th.*

**Acetic Acid—**
Canterbury, 25 cs. £46

**Acids—**
Cape Town, 3 pkgs. £12
Bombay, 5 cs. 26
Bimlipatam, 3 12

**Alkali—**
Barbadoes, 10 c. £2
Auckland, 2 t. 1 19
Fremantle, 2 9 9
Dunedin, 3 20

**Aluminous Cake—**
Calcutta, 27 t. 4 cs. £90

**Ammonia—**
Brisbane, 12 drs. £11
B. Ayres, 5 c. 10

**Ammonium Carbonate—**
Bordeaux, 5 cks. £21
New York, 130 pkgs. 525
Antwerp, 5 c. 13
B. Ayres, 1 t. 38
St. Petersburg, 5 12 127
Paris, 39 cks. 1 1 194

**Ammonium Chloride—**
Paris, 4 cks. 2 t. £105
Rosario, 2 5
Seville, 4 c. 8
Auckland, 1 2 25
Wellington, 5 185
Bremerhaven, 36 cks. 188
Danzig, 6 30

**Ammonium Sulphate—**
Demerara, 39 t. 19 c. £432
Marseilles, 100 £1,000
Hamburg, 163 16 1,695

**Arsenic—**
St. Petersburg, 10 t. 1 c. £132

**Bisulphite of Lime—**
Rangoon, 8 t. 4 c. £43

**Bleaching Powder—**
Auckland, 18 c. £9

**Borax—**
Melbourne, 5 t. £250
Hamburg, 8 c. 8 cks. 88
Copenhagen, 17 44
Sydney, 1 2 53

**Carbolic Acid—**
Rotterdam, 74 cks. £190
Riga, 34 118
Philadelphia, 80 402
Danzig, 6 drs. 32
Trieste, 100 175
Hamburg, 5 t. 8 c. 77
Paris, 10 cks. 16

**Carbonic Acid Gas—**
E. London, 25 cs. £150

**Caustic Soda—**
Otago, 4 c. £16
Natal, 3 7
Auckland, 2 t. 11 31
E. London, 1 12 63
Algoa Bay, 17 26

**Chemicals** (*otherwise undescribed.*)
Thursday Island, 1 cs. £13
Lyttelton, 20 kgs. 16 c. 115
Melbourne, 15 cs. 55
E. London, 37 42
Dunedin, 1 3 29
Brisbane, 3 4 67
Fremantle, 9 pkgs. 24
Algoa Bay, 35 59
Wellington, 4 17
Calcutta, 3 18
Rockhampton, 5 20

**Critric Acid—**
Bombay, 2 c. £15
Genoa, 8 63
B. Ayres, 2 18
Dunedin, 5 35
Seville, 5 38
Wellington, 1 8
Montreal, 18 80
Hamburg, 1 t. 10 2 cks. 319
St. Petersburg, 1 15 280

**Coal Products—**
**Aniline Oil**
Rotterdam, 12 drs. £400
**Anthracene**
Dusseldorf, 100 cks. £489
Rotterdam, 63 253
**Benzol**
Calais, 16 drs. £228
Rotterdam, 20 194
**Coal Tar Dyes**
New York, 12 cks. 175
**Creosote**
Havre, 1 cs. £9
Dieppe, 23,500 glns. 123
**Naphtha**
Calais, 51 cks. £148
**Naphthalene**
Treport, 15 cks. £21
**Pitch**
Varna, 75 brls. £23
Bourgas, 25 8
Philadelphia, 300 cks. 161
Antwerp, 386 t. 574
**Pyridine**
Hamburg, 25 cks. £221
**Tar**
Calcutta, 51 rnlts. £28
Wellington, 66 pkgs. 20
Hamburg, 200 brls. 90
Fremantle, 63 cks. 18
**Tar Oil**
St. Petersburg, 25 cks. £125
**Toluol**
Calais, 50 cks. £167

**Copperas and Bluestone—**
Algoa Bay, 17 c. £10

**Copper Sulphate—**
Lisbon, 5 t. 6 c. £76

**Corrosive Sublimate—**
Hamburg, 1 t. £229

**Cream of Tartar—**
Townsville, 8 c. £38
Lyttleton, 14 60
Rosario, 4 19
Wellington, 4 18
Dunedin, 10 43
Melbourne, 1 t. 88
Sydney, 2 10 217

**Disinfectants—**
Paris, 2 t. 10 cks. £62
Hamburg, 10 50
Antwerp, 10 50
Bombay, 6 14 c. 67
Algoa Bay, 44 pkgs. 100

**Flowers of Sulphur—**
Cape Town, 2 t. 5 c. £27

**Gypsum—**
New York, 2 t. 17 c. £13

**Manure—**
Lyttelton, 100 t. £1,350
Memel, 707 6 c. 1,922
Gothenburg, 146 3 c. 508
Libau, 200 2 528
Stettin, 376 10 1,378
Hamburg, 180 1,890

**Oxalic Acid—**
Treport, 5 t. £150
Antwerp, 1 9 30
St. Petersburg, 5 135

**Phosphoric Acid—**
Demerara, 52 bgs. £87

**Phosphorus—**
Hiogo, 10 cs. £115
Lisbon, 3 33

**Potash Crystals—**
Brussels, 14 c. £28
Bombay, 5 cks. 15

**Potassium Chlorate—**
Rosario, 4 c. £11

**Potassium Cyanide—**
E. London, 10 cs. £48

**Saltpetre—**
Rosario, 5 c. £6
Dunedin, 8 10
S. Michaels, 10 12
Gibraltar, 10 t. 210
Corunna, 2 42
Oporto, 22 9 453
E. London, 7 8
Hamburg, 1 20
Sydney, 1 22

**Sheep Dip—**
B. Ayres, 1,000 cs. £3,000
Fremantle, 100 300
Algoa Bay, 35 6 c. 293
Natal, 400 drs. 68
E. London, 1 t. 5 300 132
Auckland, 2 10 100 cs. 425

**Soda—**
Auckland, 3 t. 16 c. £32

**Soda Crystals—**
Rosario, 17 c. £3
Colombo, 12 3

**Sodium Acetate—**
Sydney, 2 t. 2 c. £57

**Sodium Bicarbonate—**
Rosario, 1 t. £8
Singapore, 3 c. 6
Massowah, 2 t. 15
Brisbane, 1 10 11
Sydney, 13 12
Barbadoes, 1 1 10
Nelson, 1 8

**Sodium Carbonate—**
Dunedin, 10 c. £4

**Strontia Nitrate—**
Philadelphia, 2 t. £40

**Sulphur—**
Demerara, 9 t. £83

**Sulphuric Acid—**
E. London, 5 t. 6 c. £22
Algoa Bay, 6 25 cs. 46
Natal, 4 23

**Superphosphate—**
Libau, 415 t. 2 c. 1,243
Riga, 1,500 13 4,400
Lyttelton, 95 325

**Tartaric Acid—**
Brisbane, 19 c. £108
Rosario, 5 28
Melbourne, 10 5 kgs. 83
Otago, 5 26
Sydney, 15 98
B. Ayres, 20 cks. 2 224
Lyttelton, 2 11
Calcutta, 3 cs. 18

## LIVERPOOL.

*Week ending August 10th.*

**Alum—**
Alexandretta, 2 t. 9 c. £13
Malta, 2 9 13
Samsoun, 2 13 14
Calcutta, 20 6 101
Valparaiso, 1 6

**Alum Cake—**
Calcutta, 10 t. 9 c. 2 q. £32
Melbourne, 5 15

**Ammonium Carbonate—**
Antwerp, 1 t. £28
New York, 5 1 c. 150
Sevilla, 12 3 q. 21
Valparaiso, 2 4 2 67

**Ammonium Chloride—**
Trebizonde, 9 c. £15
Patras, 3 1 q. 6
New York, 10 t. 2 245
Bombay, 2 8 80

**Ammonium Sulphate—**
Venice, 10 t. £100
Cheribon, 29 13 c. 1 q. 298

**Antimony—**
Montreal, 1 t. £40

**Antimony Regulus—**
Pt. Hope, 1 t. £47
Santander, 2 c. 6

**Asbestos—**
Maranham, 1 ble.

**Barytes Chlorate—**
Hamburg, 1 t. 9 c. £120

**Bisulphide of Carbon—**
Maranham, 2 c. 2 q. £5

**Bleaching Powder—**
Amsterdam, 6 cks.
Boston, 354 276 cs.
Genoa, 194
New York, 212
Odessa, 40 10 brls.
Philadelphia, 68 tcs.
Syra, 10
Bombay, 5 cs.
Montreal, 42 115 9 pkgs.
San Sebastian, 25
Trieste, 7
Vigo, 6

**Boracic Acid—**
Havre, 5 t. 2 c. £202

**Borax—**
Antwerp, 2 t. 18 c. 2 q. £89
Rotterdam, 1 3 30

**Calcium Chloride—**
Palermo, 2 t. 1 c. 1 q. £5
Sydney, 3 1 9
Bombay, 2 16 8

**Carbolic Acid—**
Odessa, 1 t. 3 c. 3 q. £54
Barcelona, 2 15 1 225
New York, 10 9 3 394
Hamburg, 19 3 477

**Caustic Potash—**
Chicago, 16 c. £30
San Francisco, 10 20
Sydney, 1 t. 1 39

**Caustic Soda—**
Baltimore, 135 brls.
Boston, 90 dms.
Brisbane, 15
Fiume, 357
Galatz, 4
Hamburg, 25
Havana, 10
Hiogo, 100
Ibrail, 18
Leghorn, 108
Lisbon, 40
Newcastle, N.S.W., 72 dms.
New York, 70 dms.
Oporto, 111
Penang, 50 kgs.
Philadelphia, 100
Rouen, 89
St. Petersburg, 300
San Francisco, 100
,, Sebastian, 28
Smyrna, 100
Stettin, 332
Sydney, 48
Tarragona, 40
Valparaiso, 20
Yokohama, 25
Adelaide, 35
Bahia, 10
Barcelona, 100
Bombay, 54
Cadiz, 20
Callao, 25 cks.
Malaga, 24
Manilla, 50
Maracaibo, 10
Monte Video, 50
Montreal, 65 pkgs.
Rotterdam, 83
Seville, 108 27 brls.
Valencia, 135
Vigo, 10
New York, 1 t. 12 c. £28

**Chemicals** *(otherwise undescribed)*
Rotterdam, 17 c. £26
Barcelona, 1 t. 30
Hamburg, 7 15
Newfairwater, 4 4 133

**Chloride of Lime—**
Boston, 45 t. 1 c. £372

**Cobalt Oxide—**
Valencia, 1 c. £50

**Colours—**
Halifax, 1 cs.
Shanghai, 40
Lisbon, 1 brl.

**Copperas—**
Alexandretta, 5 t. 18 c. £13
Ibrail, 10 25
Beyrout, 4 15 9
Odessa, 83 11 160

**Copper Sulphate—**
Talcahuano, 2 t. 4 c. 2 q. £36
Calcutta, 5 77
St. John's, N.B., 1 18 1 29
Lisbon, 2 19 43
Oran, 2 7 2 34
Bone, 2 11 2 38
Constantinople, 2 10 36
Vera Cruz, 10 3 154
Odessa, 56 11 2 836
Ibrail, 2 31
Rouen, 16 15 251
Singapore, 5 80
Antwerp, 15 16 2 236
Ghent, 4 17 2 75
Naples, 11 14 1 173
Dunkirk, 5 3 78
Bordeaux, 30 2 1 457
Oporto, 2 8 35
Catania, 2 8 3 36
Havre, 2 12 2 38
Rotterdam, 8 9 118
Havana, 5 1 4
Rio de Janeiro, 10 7

**Cream of Tartar—**
Talcahuano, 2 c. £11

**Dried Blood—**
Montreal, 2 t. 2 c. £30
Rouen, 30 4 151

**Flowers of Sulphur—**
Napier, 4 c. £2

**Glycerine—**
Hamburg, 20 t. £522
New York, 25 2 c. 3 q. 503

**Gypsum—**
Vera Cruz, 1 t. 15 c. 2 q. £5
New York, 72 9 267

**Iron Oxide—**
Antofagasta, 22 t. 18 c. £56

**Magnesia—**
Corunna, 3 q. £13
New York, 2 t. 10 c. 121
Boston, 13 cs.

**Magnesium Carbonate—**
Colon, 5 c. 2 q. £12

**Magnesium Sulphate**
Bombay, 50 bgs. £19
Halifax, 20 brls.

**Metallic Oxide—**
Montreal, 1 t. 3 c. £8

**Mica—**
Philadelphia, 6 cs.

**Paint—**
Acajutla, 400 kgs.
C. C. Castle, 25 tins. 1 cs.
Coronel, 23
Curacao, 3 cks.
Hong Kong, 132 bgs.
Maranham, 55 2
St. John's, Nfld., 6 crts.
Savanilla, 65
Seville, 29 brls.
Talcahuano, 5
Alexandria, 6
Antwerp, 16 kgs. 6 13 dms.
Cabenda, 2
Calcutta, 22
Champerico, 10
Constantinople, 5
Galatz, 100
Gibraltar, 40
Gr. Canary, 20
Landana, 10
Las Palmas, 241
Lisbon, 48
Monte Video, 7
Para, 1 brl. 11 12 tcs.
Sagua la Grande, 1
Salaora, 4 brls.
San Francisco, 18
Santiago, 1 5
Sherbro, 2
Sierra Leone, 3

**Painters' Colours—**
Amsterdam, 6 kgs. 9 dms.
Lisbon, 100 26 cks.
M. Video, 30 cs.
Sydney, 100 brls.
Valparaiso, 3 20
Accra, 1
Bilbao, 10
Bombay, 25 690
Cardenas, 20
Halifax, 20
Jeremie, 100 1 tce.
Madras, 10
Malta, 113
Manaos, 9
Maranham, 2
Monte Video, 6 brls.
Nassau, 30 3
New York, 8
Oporto, 3
Philadelphia, 148
Piræus, 14
Port au Prince, 100
Rio de Janeiro, 20
Rotterdam, 1 cs.
Salonica, 20 2
Savanilla, 17 2 12 bls.
Seville, 20
Vera Cruz, 6

**Phosphorus—**
Monterey, 1 ck. £11
Hiogo, 15 cs. 200
Shanghai, 10 62

**Pitch—**
Genoa, 100 t. 18 c.
Lagos, 8 brls.

**Potassium Carbonate—**
New York, 8 t. 18 c. £176
Chicago, 1 15 41

**Potassium Chlorate—**
Gothenburg, 2 t. 10 c. £146
Hamburg, 1 57
Odessa, 6 14
E. London, 10 30
Antwerp, 3 6 154
Naples, 2 4 100
Trieste, 10 26
Barcelona, 2 100
St. Petersburg, 7 350
Vera Cruz, 5 1 q. 15
Lisbon, 3 3 11
Stettin, 5 230
Callao, 5 12
Buenos Ayres 3 2 11
M. Video, 6 20
Yokohama, 5 280
Danzig, 5 240
New York, 10 570
Rotterdam, 2 99
Hiogo, 20 10 1,084

**Potassium Silicate—**
Valencia, 10 t. 16 c. £47
Amsterdam, 1 4 8

**Salt—**
Akassa, 200 t.
Appam, 5
Boston, 420
Brisbane, 230
Calcutta, 5,413
Cameroons, 37¾
Degama, 50
E. London, 60
Iceland, 108
Korsoer, 323
Lagos, 220
Montreal, 1,664 t. 4 c. (in sks.)
Newcastle, N.S.W., 5 t.
New York, 200 t.
Parrsboro, 121
Philadelphia, 65
Rangoon, 1,000
Rotterdam, 416
Rouen, 10
St. Nazaire, 301
San Francisco, 894
Sydney, 501½ 2 c.
Talcahuano, 288
Accra, 50 bgs.
Algoa Bay, 10
Antwerp, 165
Barbadoes, 35
Benin, 9
Bilbao, 2½
Bordeaux, 4
Cabenda, 4
C. C. Castle, 25
Copenhagen, 566
Faroe Islands, 231
Genoa, 380
Halifax, 200
Hamburg, 75
Landana, 5
Loango, 7 11
Para, 200
Pensacola, 400
Port Elizabeth, 5
,, Natal, 225
Rio de Janeiro, 2 2
Sierra Leone, 330 sks.
Singapore, 10
Trinidad, 18
Warre, 33½

**Salt Cake—**
Baltimore, 150 t. 3 c. £336
Wellington, 4 8 13
Brisbane, 10 1

**Saltpetre—**
Carthagena, 4 c. £5
Cabedello, 1 14 1 q. 39
Accra, 5 6

**Sheep Dip—**
Algoa Bay, 1 c. £6
E. London, 4 2 q. 11
Buenos Ayres, 34 t. 10 728
Odessa, 3 8 1 109

**Soap—**
Accra, 150 bxs.
Addah, 50
Alexandria, 4 cs.
Algoa Bay, 100
Antwerp, 400
Barbadoes, 200
Bombay, 500
Danoe, 25
Durban, 75
E. London, 1,800 10 cs.
Ferrol, 20
Gibraltar, 300
Gr. Canary, 900
Hamburg, 86
Macassar, 2,000
Malta, 1 ck. 20
Melilla, 50
New York, 475 3 cks.
Para, 400
Patras, 5 pkgs. 30 bdls.
Penang, 2
Port Natal, 80
Rangoon, 1,000
St. John's, Nfld., 30 25
,, Lucie, 160
Salaora, 6
Santa Cruz, 200
Santander, 11
Shanghai, 2,552
Talcahuano, 17 2
Teneriffe, 200
Toronto, 500
Trinidad, 2,410
Valparaiso, 67 8
Akassa, 8
Batavia, 2,500
Bey Beach, 25
Boston, 6
Calcutta, 5 7
Genoa, 125
Lagos, 69
Nassau, 20
Pernambuco, 1
Savanilla, 1
Sherbro, 100
Sierra Leone, 30
Sourabaya, 1,500
Warre, 100
Zanzibar, 250

**Soda—**
Calcutta, 13 brls.
Lisbon, 4
Montreal, 10 cks.

**Soda Alkali—**
Smyrna, 90 brls.
Tunis, 21

**Soda Ash—**
Boston, 172 cks. 1,600 bgs.
Brantford, 64 96
Corfu, 255
Georgetown, 52
Havana, 3
Leghorn, 10
Madras, 24
Maranham, 25 70
Melbourne, 167
Monte Video, 50
N. York, 15 tcs. 38 360
Oporto, 30
Philadelphia, 713 1,080
Rio de Janeiro, 20 330
San Francisco, 66 65
Sherbrook, 96
Smyrna, 200
Syra, 70
Talcahuano, 50
Toronto, 37
Valparaiso, 50 20
Windsor, 7 80
Adelaide, 33
Baltimore, 218
Barranquilla, 40
Brisbane, 136
Buenos Ayres, 51
Callao, 10 kgs. 100
Kingsey, 160
Malaga, 13
Malta, 4
Montreal, 70
Puerto Cabello, 49
Rosario, 10
Stockholm, 4
Sydney, 62

**Soda Crystals—**
Boston, 364 brls.
Gibraltar, 10
Hong Kong, 100
Malta, 10
Melbourne, 20 kgs.
New York, 250
Philadelphia, 476
St. John's, Nfld., 195
Salonica, 14
Smyrna, 100 cks.
Valparaiso, 86 10
St. John's, N.B., 30 25

**Sodium Bicarbonate—**
Amsterdam, 25 kgs. 6 brls.
Brantford, 25
Genoa, 190 48
Hamburg, 100
La Libertad, 20
London, Ont., 50
Melbourne, 610 8
Monterey, 10
Naples, 220
Newcastle, N.S.W., 40 kgs.
Pachuca, 4 kgs.
Patras, 20
St. Petersburg, 300 bgs.
Seville, 46 51
Sydney, 100
Toronto, 35
Venice, 100
Brisbane, 170
B. Ayres, 50
Catania, 25
Dunkirk, 10 cs.
Malaga, 50
Montreal, 80 15 cks.
Odessa, 20
Rotterdam, 20
St John's, N.B., 500
,, Nfld., 21
Stockholm, 12

**Sodium Carbonate—**
New York, 112 brls.
Rotterdam, 50

**Sodium Chlorate—**
New York, 6 t. 10 c. £447
**Sodium Silicate—**
Toronto, 5 cks.
Tunis, 2 brls.
Bilbao, 35
Leghorn, 35
Malaga, 10
Seville, 67
Vigo, 5
**Sodium Sulphate—**
Bombay, 51 bgs. £17
Rio de Janeiro, 50 kgs.
**Sulphate of Quinine—**
Penguella, 1 c. 2 q. £6
Mossamedes, 1 3 6
**Sulphur—**
Montreal, 20 t. 2 c. £112
Boston, 4 16 25
Cardenas, 13 3 q. 5
**Sulphuric Acid—**
Para, 76 galls. £13
**Superphosphate of Lime—**
Frederikshavn, 606 t. 5 c. 1 q. £1,200
**Tallow—**
Alexandria, 19 brls.
Bilbao, 21 cks.
San Sebastian, 4
**Tar—**
St. John's, Nfld, 25 brls.
San Sebastian, 2
Sierra Leone, 30
Vera Cruz, 5
**Tin Crystals—**
Montreal, 10 c. 1 q. £32
**Varnish—**
Callao, 4 cs.
C. C. Castle, 1
**White Lead—**
Capetown, 40 kgs. 2 tcs.
Lisbon, 200
**Zinc Chloride—**
Maranham, 8 c. 3 q. £11
Bombay, 12 t. 8 2 89

## HULL.

*Week ending August 6th.*

**Aluminium—**
Rotterdam, 3 cs.
**Bleaching Powder—**
Gothenburg, 15 cks.
Konigsberg, 30
Stettin, 52
**Caustic Soda—**
Antwerp, 37 dms.
Danzig, 86
Helsingfors, 4 cks.
Rotterdam, 410
Stettin, 60 5
St. Petersburg, 10
**Chemicals** *(otherwise undescribed)*
Antwerp, 28 cs.
Amsterdam, 16 btls.
Bremen, 3 cks.
Copenhagen, 4 2 100
Christiania, 29
Danzig, 7 100 kgs.
Gothenburg, 54 10 60 pkgs.
Hamburg, 28 10
Harlingen, 40
Helsingfors, 8
Rouen, 15
Rotterdam, 49 48
Riga, 25
Stettin, 50 77 150
Stockholm, 11 100 kgs.
St. Petersburg, 329 29 122 pks.
**Copper Sulphate—**
Riga, 3 cks.
**Cottonseed Oil—**
Antwerp, 468 c.
Bremen, 50
Copenhagen, 202
Flushing, 83
Gothenburg, 273
Hamburg, 851
Konigsberg, 29 brls.
Rotterdam, 1,428
**Creosote—**
Christiania, 20 cks.
Hamburg, 150
**Dyestuffs** *(otherwise undescribed)*
Boston, 3 cks.
Christiania, 125 bgs.
Rouen, 1 cs.
**Farina—**
Dunkirk, 10 sks.
**Linseed Oil—**
Antwerp, 114 c.
Bergen, 18
Christiansund, 17
Copenhagen, 32
Christiania, 433
Drontheim, 77
Gothenburg, 7
Hamburg, 153
Helsingfors, 52
Jersey, 3
Rotterdam, 152
Stettin, 4
Stavanger, 21
**Manure—**
Dunkirk, 80 t.
Stettin, 76
**Mineral White—**
Antwerp, 5 t.
**Naphthalene—**
Riga, 55 cks.
**Ochre—**
Bremen, 1 ck.
**Paint—**
Jersey, 2 cks. 2 kgs.
**Painters' Colours—**
Antwerp, 43 cks. 5 cs. 16 kgs.
Amsterdam, 5
Bergen, 1 1
Bremen, 1
Copenhagen, 2 5 dms.
Christiania, 21 100 pkgs.
Dunkirk, 1
Drontheim, 12
Gothenburg, 1
Hamburg, 38
Harlingen, 2
Helsingfors, 5
New York, 214
Rouen, 17
Rotterdam, 4 1
Stettin, 25
St Petersburg, 60 2
**Pitch—**
Antwerp, 169 t.
**Soap—**
Bergen, 60 cs.
**Tallow—**
Gothenburg, 15 cks.
Helsingfors, 49
Stockholm, 12
**Tar—**
Amsterdam, 6 cks.
Bremen, 2
Copenhagen, 5
Christiania, 8
Drontheim, 10
Hamburg, 20
**Varnish—**
Antwerp, 2 cks. 4 dms.
Amsterdam, 12
Bremen, 3
Christiania, 1
Hamburg, 2 7 5 cs.
Helsingfors, 4
Stettin, 1

## GLASGOW.

*Week ending August 11th.*

**Acetate of Lime—**
Stettin, 50 t. 1½ c. £520
**Alizarine Oil—**
Lisbon, 1 t. 10 c. £34
**Alum—**
Quebec, 64 t. 10½ c. £320
Melbourne, 5 14¾ £29. 10s.
**Ammonium Chloride—**
Italy, 3 t. 5 c. £75
**Ammonium Sulphate—**
Italy, 30 t. 12 c. £315
**Aniline Salts—**
Lisbon, 7¼ c. £24
**Boracic Acid—**
Melbourne, 2 t. 10 c. £88
**Creosote—**
Bordeaux, 130 t. 7 c. £1,250
**Glucose—**
Cape Colony, 2¼ t. £27
**Iron Oxide—**
New York, 2 t. 16 c. £50
**Lead Acetate—**
Quebec, 5 t. 18¾ c. £114
**Linseed Oil—**
Fiume, 10 ¼ c. £10. 16s.
Colombo, 1 t. 22 10
Madras, 3 12 83
Cape Colony, 5 4¾ 119
**Naphtha—**
Copenhagen, 150 cks.
Bordeaux, 16 t. 2½ c. £217
**Nitric Acid—**
Madras, 15 c. £11. 18s.
**Paint—**
Cape Colony, £50
Adelaide, 14½ c. 20
Sydney, 301
**Painters' Colours—**
Malta, 6 t. ¾ c. £110
Colombo, 5 9 54
Cape Colony, 2 3¾ 59
New York, 9 12½ 175
Montreal, 1 18¾ 75
**Paraffin Wax—**
Stettin, 9¾ c. £18
Italy, 16 t. 2 531
**Pitch—**
New York, 14 t. 9½ c. £28. 10s.
**Potash Salts—**
Cape Colony, 36 t. £4,634
**Potassium Bichromate—**
Melbourne, 1 t. 4 c. £66
Bergen, 2 cks. 30
**Rosin—**
Madras, 75 brls. £55
**Rosin Oil—**
Rotterdam, 50 brls.
**Soap—**
Lisbon, 1 t. 10 c. £29
New York, 2 17½ 43
**Sodium Bichromate—**
Italy, 7 t. 1½ c. £180
**Tallow—**
Rotterdam, 3 t. £99
**Tar—**
Madras, 86 brls. £43
Quebec, 12 t. 10 c. 27
Stettin, 800
Riga, 200 120
**Varnish—**
Huelva, 4 c. £24
Sydney, 115
**White Lead—**
Cape Colony, 11 t. £240

## TYNE.

*Week ending August 6th.*

**Alkali—**
Amsterdam, 73 t. 4 c.
St. Petersburg, 117 15
**Alum—**
Pasages, 10 t. 17 c.
**Ammonium Chloride—**
Montreal, 1 t. 2 c.
**Anthracene—**
Rotterdam, 24 t. 15 c.
**Antimony—**
Hamburg, 2 t. 10 c.
Rotterdam, 7
Montreal, 10
Copenhagen, 10
**Barytes Carbonate—**
Hamburg, 119 t. 14 c.
**Bleaching Powder—**
Amsterdam, 44 t. 19 c.
Helsingfors, 40 1
Antwerp, 9 19
Christiania, 25 2
Rotterdam, 10 3
St. Petersburg, 438 17
Horsens, 1 11
Pasages, 22 3
Montreal, 49 14
Riga, 30 18
Trondhjem, 10 2
Copenhagen, 38 18
Stockholm, 43 2
Bergen, 4 17
**Carbolic Acid—**
Aalborg, 12 c.
Bergen, 2 galns.
**Caustic Soda—**
Helsingfors, 24 t. 19 c.
Antwerp, 5 14
Rotterdam, 3
Pasages, 75
Montreal, 58
Riga, 24 19
Bergen, ¾
Copenhagen, 5 16
Stockholm, 14 13
**Creosote Oil—**
Aalborg, 10 c.
**Linseed Oil—**
Ergasteria, 8 c.
**Litharge—**
Hamburg, 2 t. 15 c.
Montreal, 10
**Magnesia—**
Antwerp, 2 c.
Hamburg, 8
Copenhagen, 2
Stockholm, 16
**Ochre—**
Montreal, 5 t. 19 c.
**Paint—**
Antwerp, 20 galns. 9 c.
**Salt—**
Horsens, 1 t. 8 c.
**Soap—**
Antwerp, 56 lbs.
Hamburg, 7 t. 17 c.
Bergen, 1¼
**Soda—**
Amsterdam, 4 t. 6 c.
Helsingfors, 1 15
Antwerp, 56 lbs.
Rotterdam, 9 10
Esbjerg, 20 5
Montreal, 60 2
Bergen, 1
Copenhagen, 5 3
**Soda Ash—**
Helsingfors, 36 t. 17 c.
Christiania, 15 12
Rotterdam, 5 8
St. Petersburg, 10
Copenhagen, 10
Stockholm, 90 9
Gothenburg, 10
**Sodium Carbonate—**
Bergen, 1 btl.
**Sulphur—**
Antwerp, 37 t. 10 c.
Hamburg, 10
Gothenburg, 60
**Superphosphate—**
Riga, 388 t. 9 c.
Fredrikshavn, 827 19
**Tallow—**
Antwerp, 56 lbs.
Hamburg, 18 c.
Bergen, 10
**Tar—**
Aalborg, 1 brl.
Bergen, ¾ c.
**Turpentine—**
Bergen, ¼ c.
**Varnish—**
Bergen, 9 c.
Stockholm, 3
**White Lead—**
Montreal, 70 t. 9 c.
Copenhagen, 1 12
Stockholm, 1 7

## GOOLE.

*Week ending July 27th.*

**Bleaching Compound—**
Ghent, 15 cks.
**Chemicals** *(otherwise undescribed)*
Ghent, 15 cks.
Hamburg, 183
Rotterdam, 101
**Coal Products** *(otherwise undesc'd.)*
Calais, 25 cks.
Ghent, 5
Hamburg, 72
**Manure—**
Boulogne, 82 bgs.
Hamburg, 172

## GRIMSBY.

*Week ending July 30th.*

**Chemicals** *(otherwise undescribed)*
Antwerp, 10 dms.
Dieppe, 18 10 cks.
Gothenburg, 64
Hamburg, 2 cs. 2 12 pkgs.
**Coal Products** *(otherwise undesc'd.*
Dieppe, 80 cks.
**Dyestuffs** *(otherwise undescribed)*
Rotterdam, 4 cs. 12 cks.

# PRICES CURRENT.

WEDNESDAY, August 17th, 1892.

Prepared by Higginbottom and Co., 116, Portland Street, Manchester.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids:—** | | | | |
| Acetic, 25 °/₀ and 40 °/₀ | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | | 50/- | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 °/₀) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ( ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 5 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 3 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 9 | 16 | 3 |
| ,, ,, (grey) Hull | ,, | 9 | 16 | 3 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 2 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes:—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8¾ |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 10½ |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 7 |
| ,, 50/90 ,, | ,, | 0 | 1 | 3 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 6 |
| ,, (crude 60°) | per gallon | 0 | 1 | 4 |
| Creosote (ordinary) | ,, | 0 | 0 | 1½ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 0 | 11 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 44 | 5 | 0 |
| ,, Sulphate | ,, | 15 | 0 | 0 |
| ,, Oxide (copper scales) | ,, | 44 | 0 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 45 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 15 | 0 |
| ,, Litharge Flake (ex ship) | ,, | 14 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, ( brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 5 | 17 | 6 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 4 | 0 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 3 | 9 |
| **Oils:—** | | | | |
| Cotton-seed | per ton | 19 | 5 | 0 |
| Linseed | ,, | 20 | 5 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 6½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 10 | 0 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10¼ |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 7 | 17 | 6 |
| Silver (metal) | per oz. | 0 | 3 | 2 1/12 |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 7 | 6 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 6 | 5 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 18 | 10 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 10 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8 |
| ,, Borate (Borax) | net, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | net pr. ton (10 ton lots) | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) | ,, ,, | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 15 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 4½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¾ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 16 | 6 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7¼ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7½ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone: Best Quality (nominal) | ,, | 5 | 0 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 96 | 10 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 21 | 7 | 6 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# HEMICAL TRADE JOURNAL

AND

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## WHAT CONSTITUTES B. P. CITRIC AND TARTARIC ACIDS.

IMPORTANT TO MANUFACTURERS.

As our enterprising contemporary, the *Wholesale Druggist*, remarks in a recent issue, a good deal of commotion has been created both amongst druggists and manufacturers by the recent citric and tartaric acid cases which were before the Woolwich Police Court, and attention is called to a very important decision which the druggists have arrived at for their own protection. The Chemical Trade Section Committee of the London Chamber of Commerce has held two meetings in connection with these cases, one prior to, and the other since their hearing and dismissal. The proceedings at both of these meetings it was understood were not to transpire, the whole matter, so to speak, being *sub judice*, but the cat having been let out of the bag so far before any final decision has been arrived at, there can, we think, be no harm in our recounting briefly the circumstances which have led up to the decision of the druggist element not to buy these acids except from manufacturers who are prepared to guarantee that they will answer the B. P. test. The first of these meetings was convened to consider what action should be taken by the trade as a whole, in regard to the prosecution of a local oil and colour dealer at Woolwich, for having sold tartaric and citric acids which were found to contain lead. After a good deal of discussion, it was decided that Dr. Stevenson or Dr. Lough should be asked to come forward and give evidence that the infinitesimal quantity of lead found was not deleterious to human life. So far both parties recognised the necessity, whatever opinions they might hold amongst themselves, of meeting a common enemy and of checking the well-meant but somewhat over zealous concern of the local analyst for the public weal. Following this decision a discussion arose, initiated by the druggists as to whether the time had not arrived when manufacturers might reasonably be expected to provide the druggist with an acid which would answer the B. P. test, and so save them from the annoyance of these prosecutions, against which they were bound to protect their retail customer? One firm, John Bennett Lawes and Co., Ltd.—there can be no harm in mentioning the name since they have since issued a circular on the subject—volunteered there and then to manufacture acids which would answer to the B. P. test. They had, they said, been giving the matter great attention, and had been laying down plant for two years with this object in view. The main difficulty with them was not to manufacture to the B. P. test, but to know authoritatively what was the recognised method of applying the test.

The discussion of the whole of this question was, however, adjourned until a future meeting, when a general policy for the future could be decided on.

This no doubt put the druggists on the scent to discover methods for their own protection, and a meeting was subsequently held by the recently resuscitated Drug Club, notice having been previously given to the manufacturers that such a meeting was to be held, and inviting them to make any suggestions on the topic to be discussed. Bennett Lawes and Co., Ltd., sent in a letter saying that they were prepared to supply citric and tartaric acids, an aqueous solution of which would not be discoloured by treatment with sulphuretted hydrogen; and further, that they did not

propose at present to charge anything extra for the purified acids. This was the key to the whole position, and the druggists forthwith resolved to recommend that from that day henceforth, tartaric and citric acid should only be bought at wholesale druggists that would answer the B. P. tests, and that in their price lists they should only quote acids that would conform to that test. A meeting of the Committee of the Chemical Section of the Chamber of Commerce was again held to discuss a means of preventing a recurrence of these prosecutions. The discussion had not proceeded far, when the druggists made it apparent that while the question might present difficulties to the manufacturers as a body, it presented none to them, as they had already decided, and the text of the resolution which we have just given was read to the meeting, and after a good deal of discussion a resolution was agreed on, the druggists being decidedly the preponderating element, recommending that all tartaric and citric acids sold for medicinal and dietetic purposes should conform to the B. P. tests, but this was qualified by a sentence to the effect that there was no objection to these acids being made technically pure for use in the Arts and sold as such.

It was subsequently agreed, on the suggestion of the representative of Messrs Lawes, that a small and special committee should go into the whole question, not only as to the margin of impurity which should be permitted, but also the test which should be recognised as the one to determine whether the B. P. requirements were, or were not, satisfied. The resolution was therefore to a great extent neutralised by the appointment of this special committee.

Now, regarding the aspect taken by the *Chemist and Druggist*, we must take exception at the outset to their article being headed "*Lead free* Citric and Tartaric Acids." The druggists do not ask for these acids *lead free*, and if they did, what is more to the purpose Bennett Lawes and Co., and no other firm, will guarantee the acids to be *lead free* at anything approximating the present price. What Bennett Lawes and Co. have agreed to do is to supply these acids at the same price as formerly, and that they will conform to the B. P. test, which is a very different thing. One of the questions to which this special committee is to direct its attention is to discover a recognised method of applying the test. Bennet Lawes and Co. may supply acid which will conform to *their* method of applying the test, but would that method be satisfactory to the public analyst, whose verdict will cause the machinery of the law to be set in motion. We are told by those who are recognised authorities as practical chemists that this is the crux of the whole matter, as every man seems to have his own method of applying the test. Until this matter is settled it would, therefore, seem that the druggists are in no better position than before. We must again beg to differ from the same contemporary in regard to their statement that two firms of citric acid makers and one tartaric acid maker present at the Chamber of Commerce meeting declared their readiness to supply acid answering the tests of the Pharmacopœia at the same prices which they had hitherto been charging for ordinary commercial acid. Only one firm has made any such declaration, and that is the firm, a copy of whose circular we append. The representative of one firm, on being questioned at the meeting as to whether they would also supply those acids to answer the B. P. test, simply replied that they were of course prepared to do whatever Messrs Lawes purposed doing. What other answer could be expected in these days of keen competition? Another representative simply said that his firm was of course prepared to do anything that the druggists were willing to pay for. The grocers and oilmen in the wholesale trade, who had provided the merchandise for the sale of which their retail colleagues were indicted, appear to have been satisfied with the termination of the case. And so might the druggists, we think, as regards the demand for a purer acid, for Dr. Stevenson, who we hear attended the Woolwich Court to give evidence if need be, was prepared to say that the tartaric acid contained less traces of lead than is to be found in ordinary drinking water. And according to our contemporary the magistrate evidently thought that it was as pure as need be, because it is stated that the case was dismissed on the ground of the infinitesimal quantity of lead present. This in a sense is correct, though the point which really decided the case was the clause in the Act of Parliament, which provides that a prosecution will not lie where it is proved that an impurity is due to the process of manufacture, an altogether different thing to adulteration. And Messrs. Lawes proved at the first hearing that the acid was as pure as could be expected, and that to obtain a chemically pure acid it would be necessary to use platinum vessels. The Act gives all the protection that is required so far as manufacturing impurities are concerned. The further protection seems to us to be required in quite a different direction, with which we shall deal presently. If the druggists can have an acid which, in case of attack, they can say answers to the B. P. requirements at the same price as they pay now, then we think they have done wisely in coming to the decision they have arrived at. Should there be, however, any difference in the price of the pure and commercial article, many years experience of the public taste proves that in the long run the public will purchase the acid which Dr. Stevenson says contains less lead than some ordinary drinking waters, in preference to the pure expensive acid. The difficulty of the difference of price is, a measure obviated by the statement made in the followi which has been issued to the trade by Messrs. Lawes and C

29, Mincing Lane, London,
10th A

The attention both of manufacturers and consumers of tartaric a has of late frequently been called to the subject of lead contai especially during the past month, in connection with summonses tak Woolwich Local Board of Health against chemists and others in th selling acids alleged to contain a proportion of lead "injurious to he

It was not suggested in any case that the acids had been adulte the lead was present, except as a result of the process of manufacture appears hard that the retailer—assuming he purchased the best he c should suffer the annoyance and expense of a prosecution for a m beyond his control.

Eminent authorities are far rom agreeing either as to what may a dangerous quantity of lead, or as to the method of analysis by wh quantity may be determined. Without for the present discussing th must be admitted that throughout the ordinary process of manufacti do take up some amount of lead from the vessels and pipes that a employed; the quantity thus taken up may be very small, and we that any injurious effects attributable to it have ever been discover consumption of these acids, particularly tartaric, has increased ve late amongst manufacturers of aerated waters, baking powder, conf the various saline preparations, it appeared desirable that renewed at be made to produce them in a state of greater purity.

During the past two years the subject has been engaging our attention, and after numerous experiments we have adopted a pro we are producing acids that meet the requirements of the British P that is to say, an aqueous solution of them is not darkened by hydrogen gas.

We have made the requisite extensive alterations in our plant, prepared to supply both tartaric and citric acids of this improved q making any increase upon our ordinary prices. Consumers and therefore, if they choose, at once put themselves in a position of saf any proceedings such as those above referred to.

John Bennett Lawes and

So well and good, but it seems to us that no lasting g effected unless the special committee are able to pursue t gation. (1) In regard to the permissible margin of impur as to the method of applying the test and come to a defin Another suggestion was made which will no doubt hav consideration of the committee, and that was as to the app some Government official whose sanction it will be necess before a prosecution can be commenced. This would in all prevent many of the prosecutions with which the trade is ha and stands every likelihood of being troubled with in the f present state of affairs continues to exist.

## BURY AND THEIR SEWAGE.

THE Bury Corporation for several years have declined a sewage scheme so as to comply with the requiren Rivers Pollution Bill. They purchased a quantity of land treat the sewage and prepared plans for a complete syste sought to acquire borrowing powers from the Local Govern but permission was refused, as the land taken was not consider More than once the Salford Conservancy Board have t take proceedings, and at one time did commence an a County Court, but the case never came to a trial. In Ju public meeting of the ratepayers was held, at which a res passed asking the Town Council to decline to spend any sewerage scheme until the incidence of taxation was so compel the landowners to pay a fair share of the cost. T ment of a Joint Committee for the counties of Lancashire a to deal with the rivers Irwell and Mersey has altered the c affairs, and on the 4th inst. the Bury Corporation confirmed of the General Purposes Committee: "That this Committ further opposition to the demand of the Joint Committee less, but as a meeting of the ratepayers passed a resolutio the Council not to proceed with the sewage works, a m ratepayers be called, and that the members of the Comm that further opposition would be futile." In accordan resolution, a ratepayers' meeting was held in the Ather Mayor (Mr. J. Ashworth) was in the chair, and there we number of members of the Council and other gentlemen.

The Mayor stated the object of the meeting, and said th Council had hitherto obeyed the instructions of the ratepa sewerage question, but now new conditions had arisen.

Aldermen Maxwell (a member of the Joint Committee "That the ratepayers at this meeting confirm the resoluti the General Purposes Committee on the 25th July last." resolution of 1890 was an important one, and something ha on the question of rivers pollution, but nothing had been the law as to the incidence of taxation; and now the Join had acquired special powers as to the rivers Mersey and their tributaries. In July, 1890, the Town Council wrote Government Board that they saw no reason why they shoul land than they already possessed, as at the Government

just before the question was one of precipitation and filtration by means of polarite beds in tanks and not land filtration. But the Local Government Board would not listen to the objection, and an attempt to obtain special powers in a private Act on the part of the Town Council failed to secure what was desired. The Joint Committee was formed, and the General Purposes Committee had come to the conclusion that further opposition was useless. The question was, therefore, once more brought before the ratepayers. The Council was quite convinced of the disadvantage at present of spending money on a sewerage scheme, but they felt that they could no longer resist the Joint Committee, who had already given instructions to institute proceedings against Bury unless in a month something was done to comply with the law. The powers of the Joint Committee were ample, and if the Bury Town Council fought them they would incur great responsibility. The Council found no sympathy in Parliament, with the Local Government Board, or in any of the neighbouring towns, and they felt that the policy of "masterly inactivity" had run its course and that they must give way.

Mr. Kay seconded the motion, and admitted that the waiting game was "up." The Council were still favourable to the incidence of taxation being altered before they did anything; but in face of the Ship Canal and the action of the Joint Committee they felt compelled to move.

Mr. E. Wainscott opposed the resolution, because, as had been admitted, no efficient means had yet been found of dealing with sewage. He objected to the town being made the "mug" for the Ship Canal, yet all that Bury could do would scarcely affect the Ship Canal a flea-bite. He was in favour of cleansing the river, but if all the sewage was kept out there would be no difference seen in the river. The real polluters of the river were the men who paid rental to Lord Derby for permission to do so. (Cheers.) Every Liberal councillor elected during the past few years had been returned on condition that he would oppose a sewage scheme—(hear, hear),—and they had not fought the question up to the hilt as they ought to do. He did not believe, if the Joint Committee took action, that the magistrates would convict. The chances of the town were better than before, for with a Liberal Government in power they might at an early day have an alteration in the law as to local taxation, and the special circumstances of the town were such that the law courts would prevent Bury being fined.

Councillor Butler, although wanting an alteration in the law as to rating, felt that the sewage scheme must be carried out.

After further discussion the resolution was lost by a considerable majority. A poll was demanded, and granted.

## THE OIL TRADE OF SCOTLAND.

So peculiarly is the destructive distillation of oil shale, a Scottish industry, that the condition of the mineral oil trade is a matter of national interest. Mineral oil, of course, is not a monopoly of ours; but the mineral oil of America, East Europe, and Asia comes to the hand of man in a liquid or semi-liquid form, whereas, in Scotland, it has to be mined from the bowels of the earth in the form of shale, and then put through an elaborate process of distillation in retorts of the most scientific construction. The Scottish oil industry is, from first to last, one calling for the exercise of the highest chemical and engineering knowledge and skill, whereas that of America calls for little more than the application of mechanical labour. The history of the Scotch industry has been a romance, and few departments of human effort have experienced so many vicissitudes within considerably less than a generation. At present the trade seems to have fallen upon evil days, and a perusal of the annual reports of the several companies, is a depressing exercise. Looking at the net result of the operations of the financial year just closed, we find the following in the case of those companies that have published their accounts:—

| | Profit. | Loss. |
|---|---|---|
| Broxburn (after depreciation) | £20,354 | — |
| Burntisland (without depreciation) | — | £9,607 |
| Clippens ,, ,, | — | 13,834 |
| Holmes ,, ,, | 1,113 | — |
| Linlithgow ,, ,, | — | 7,512 |
| Oakbank ,, ,, | — | 1,623 |
| Pumpherston (after depreciation) | 15,087 | — |
| Young's (without depreciation, but less interest) | 49,938 | — |

Thus, four only out of eight companies are able to show a balance on the right side of profit and loss account, even by postponing allowances of depreciation of property, machinery, and plant. In some cases (it would be invidious to make individual references here) no depreciation has been written off for several years; in others the operation has only been suspended for a year or two, in the hope, no doubt, of better days to come.

Whether such a hope can be fairly entertained there is only too good reason to doubt; and that that vague, incorporate, yet shrewdly intelligent body called "the market" entertains but little, can be inferred from an inspection of the Stock Exchange list. We have been at pains to compile a comparison of the prices of oil shares as at the close of last account and at the corresponding period of last year. The effect of a year's depression is startling. The following statement shows the prices of the shares on June 10, 1892 and 1891, respectively:—

| | June 10. 1891. | 1892. | Loss. |
|---|---|---|---|
| Broxburn | 17 | 10 | 7 |
| ,, preference | 11 | $10\frac{11}{16}$ | $\frac{5}{16}$ |
| Burntisland | 65s. 6d. | 10s. | 55s. 6d. |
| Clippens | 60s. | 21s. | 39s |
| ,, debentures | 95 | 81½ | 13½ |
| Dalmeny | 12½ | 10 | 2½ |
| Hermand (A) | 7s 6d. | 3s. | 4s. 6d. |
| ,, (B) | 3s. 9d. | 3s. 9d. | — |
| Holmes | 65s. 6d. | 25s. | 40s. 6d. |
| ,, £8. paid | 6¼ | 65s. | 60s. |
| Linlithgow | 25s. | 5s. | 20s. |
| Oakbank | 8⅞ | 6 | 2⅞ |
| ,, £5. paid | 88s 9d. | 75s. | 13s. 9d. |
| Pumpherston | 9⅛ | 7¼ | 1⅞ |
| Young's | 64s. | 29s 3d. | 34s. 9d. |
| West Lothian | 60s. | *Nil.* | 60s. |

(The West Lothian Company have gone into liquidation during the year under review.)

Now, what do these declines in the market prices of these shares represent to the public? The question is more serious than may be generally supposed, for the oil shares are nearly all held in Scotland; and while they are distributed among all classes of the community, they are very largely held by the class of small investors—the industrial and trading class—who have put their savings freely into this nationa industry. The following table shows the depreciation in capital amount:—

| | No. of shares. | Fall. | Loss. |
|---|---|---|---|
| Broxburn | 23,500 | 7d. | £164,500 |
| ,, Pref | 10,000 | $\frac{5}{16}$. | 3,124 |
| Burntisland | 16,700 | 55s. 6d. | 46,342 |
| ,, call of 30s. per share | — | 30s. | 25,050 |
| Clippens | 25,896 | 39s. | 50,497 |
| ,, stock | 1,400 | 13½ | 18,900 |
| Dalmeny | 2,700 | 2½ | 6,750 |
| Hermand | 115,000 | 4s. 6d. | 25,875 |
| ,, call on | 200,000 | 5s. | 50,000 |
| Holmes | 5,000 | 40s. 6d. | 10,124 |
| ,, | 625 | 60s. | 1,875 |
| Linlithgow | 20,000 | 20s. | 20,000 |
| ,, call of | — | 28s. | 20,000 |
| Oakbank | 4,473 | 2⅞ | 12,860 |
| ,, | 4,500 | 13s. 9d. | 3,094 |
| Pumpherston | 12,500 | 1⅞ | 23,438 |
| Young's | 77,011 | 34s. 9d. | 133,806 |
| Young's converted stock depreciated | — | ? | ? |
| West Lothian | 10,000 | 60s. | 30,000 |
| Capital loss in 12 months | | | £646,237 |

To this, however, must be added the loss by interest in these companies which have not paid any dividends, the depreciation on capital converted from debenture bonds into ordinary shares (Young's) and the depreciation on other mortgage and debenture bonds and deferred shares—items which are not easily ascertainable, but which will bring up the years loss to, in round numbers, not less than three-quarters of a million sterling. Indeed, it would not be unfair to assume that the community is poorer by one million in respect of these investments than it was a year ago. How much poorer since the companies were formed one shrinks from inquiring.

This is a serious enough fact in itself, but, unfortunately, worse remains behind. The accounts of a considerable number of these companies show that they are in a condition from which financial recovery is hopeless without some phenomenal revival in some branch of the oil trade. Of such phenomenon there is not the slightest prospect. Last year good hopes were entertained of profit under the arrangement with the American competitors for sustaining the price of scale or paraffin wax. What was gained, however, in scale was more than lost in burning and machinery oils, and a heavy net depreciation occurred. This year a fierce competition between the Americans and the Russians has produced a still further reduction in the price of oil, and at the present moment there does not seem to be a redeeming feature in the trade. Indeed, the competition between the petroleum

wells of the eastern and the western hemispheres may conceivably reduce the price of burning oil to farthings, instead of pence, per gallon, and with this product must also decline the heavier oils used for machinery purposes. With the Scotch companies burning oil is now very much in the nature of a bye-product, their profit being derived from elements which formerly went to waste. This, however, is a mere general statement, not to be received without qualification. Thus, the companies may not, as a rule, expect to make a profit on the average selling price of burning oil; but if by the competition of petroleum they are compelled to sell at a loss what they cannot avoid making, then their chance of profit upon the other products is *pro tanto* reduced. At the present moment the fortunes of the survivors seem to depend on the future course of scale and sulphate of ammonia, and the balance of probability does not appear to be in favour of an advance of either. On the other hand, the announcement of a heavy reduction in the price of petroleum in America conveys a serious menace; and it must be admitted that few, if any, of these Scotch incorporations are in a position to stand any further buffeting. Their balance sheets are not models of perspicuity; indeed, some of them leave the general impression that they are skilful contrivances to hide the worst from the long-suffering proprietors. Sometimes one may be cruel only to be kind, and sometimes one may try to be kind and end by being cruel. If all the oil concerns had been properly debited with depreciations most of them would have been wiped out of existence by this time. But while there is life there is hope; and, at all events, as long as there is life there is employment for a large number of persons, who will, indeed, be in an evil case when the oil industry has to be numbered among the departed glories of Scotland.

## DERMATOL POWDER.

THIS new remedy, which was discovered last year, and was described in this journal (No. 219, p. 63), has quickly won for itself a position in the medicine chest, quite in contrast to so many other new remedies. In about twenty scientific works the different virtues of Dermatol are extolled: it is not poisonous, it has no smell, it does not irritate, is excessively handy, and can be used as a drying remedy. It is wonderfully suitable for the healing of wounds, and also as a dusting powder for most affections of the skin. Dermatol can be safely trusted in the hands of the public because it has no poisonous properties. In order that a cheap preparation may be delivered (pure Dermatol does not cost any more than Iodoform) the Farbwerke vorm. Meister Lucius and Bruning, Hoechst o. M., have introduced a Dermatol dusting powder into the trade which contains 20 per cent. of Dermatol. Pure Dermatol is more suitable for flesh wounds, for cuts, crushes, and burns, etc., but the Dermatol dusting powder is serviceable in cases of skin disease and skin affections. For many reasons Dermatol appears most suitable to be classed amongst home remedies, and we have no doubt that in a short time it will be just as well known as Dr. Knorr's antipyrin.

# Reports of Companies.

## THE SOUTH METROPOLITAN GAS COMPANY.

The half-yearly general meeting of the South Metropolitan Gas Company was held last week at the Bridge House Hotel, London Bridge, Mr. George Livesey presiding. In moving the adoption of the report, the chairman stated that their coal had cost them in the past half-year about 1s. 2d. a ton less than it did in the corresponding period of 1891. Coke, however, had also been cheaper, and they had received £21,245. less from this residual. In fact, while coal has been 1s. 2d. a ton cheaper they had lost the equivalent of 1s. 1d. per ton on the coke. Since June, 1890, when their profit was at the lowest point, they had practically derived no benefit from the fact that coal had ever since then been getting cheaper, for while in the half-year to December, 1890, the cost of their coal into store was 14s. 11d. per ton, and last half-year 13s. 7d., its net cost, after deducting the receipts from coke, tar, and ammonia, came to 5s. 2d. a ton in the first-mentioned period, and 5s. 4½d. in the past half-year. In fact, they had lost a little more on their products than they had gained by coal in the last four half-years. He thought, however, he might say that there was a very considerable improvement in prospect. They had made their contracts for the next nine months at a decided reduction, and he thought he might say that coke had been at its lowest, for in the past half-year they received the equivalent of 5s. 4½d. per ton for this residual, whereas they received only 5s. 1¾d. in the previous half-year. Coke, therefore, had really improved in price in the last half-year, while coal had certainly gone down, and was still falling. They had also been enabled to get rid of the very large stocks of coke which they held a year ago, and also six months ago.

### THE PRICE OF TAR.

They had received 1s. 7¼d. per ton of coal for their t year ago they obtained only 1s. 5d., but he was sorry to was not owing to the intrinsic value of tar, but to the co they made at a certain price two years ago. These contra out in a few months, however, and then, unless a con provement occurred in the tar market—of which there we he feared that there would be a considerable fall in the article.

### THE POSITION OF ANTHRACENE.

Anthracene, one of the products of tar, was the base of number of dyes now used, and when it was discovered it the market the dyes whose place it took. Ten years ag was sold at 4s. and 4s. 6d. a unit, but the price was no unit. They were at the mercy of speculators in and purch article, and he considered this very unsatisfactory, especi was remembered that there was no substitute for anthr believed that efforts had been made from time to time distillers to arrive at some agreement as to the price at w cene should be sold, but the obstacle had always been th and Coke Company who had never joined them in any wa

### SULPHATE OF AMMONIA.

He was glad to say that while the price of ammonia ha the company had been able to maintain their receipts reasonable figure by manufacturing sulphate. The com this article was nitrate of soda, which was found in i quantities in South America. This was a sufficient r depression in the price of sulphate of ammonia, which a f sold for £20. a ton, whereas its price was now only £10. however, think it was likely to go lower, as it would not over nitrate of soda at a lower figure. In June, 1891, t 1s. 3⅜d. per ton of coal for their ammonia, whereas last h obtained 1s. 3⅝d., although its value had gone d reference to the question of rating, five of the parishes— pectedly—re-opened this question in the past half-year, it settled in 1890 and the beginning of 1891 at a ratio, taking value over the various parishes, of 10 per cent. on the those parishes. The Gas Light and Coke Company, how had carried on some expensive appeals, had their case s Court at 15 per cent. on the gas rental, and the five parish he had alluded informed them that they did not see wh Metropolitan Company should ever get off with 10 per company employed a very able surveyor, and the secretary attended the assessment committee, who met them in a ver They were able to show that the circumstances as between t and the Gas Light and Coke Company were totally differen

### THE CONSUMPTION.

With reference to the consumption of gas, they had h experience, for there had been a reduction of about ½ per quantity consumed last half year compared with the consum corresponding period of the previous year. In the early half-year ended June, 1891, the weather was exceedingly dividing the past half-year into two parts they found th their own in the first three months, when they sent out rath than in the same period of the previous year. They had, look a little further than the question of the weather, and h was to be found in the increase of price which was made Light and Coke Company. When this advance in price w leaflet was published by certain persons stating that the pri London was 3s. or 3s. 1d. per 1,000, and this information wa among the consumer's in this company's district. He had very that it had influenced some of them to try and economize. seemed to him to be tolerably strong evidence that increasin of gas tended to check the consumption and that reducin tended to increase the consumption. They, therefore, fel indeed that circumstances were changing, and he hoped it w very long—though, he feared, it would not be very soon— were able to reduce their price again. They had given cer in the report showing the number of workmen engaged by t winter and the summer, and the average weekly wages per m believed the shareholders would feel that it was satisfacto that their men were well paid. With reference to the pr system, which was introduced by the directors three year were as satisfied with it now as they had ever been, and th doubt that it was producing a good effect on the work directors were endeavouring to give the company's *employés* exercising thrift, allowing them 4 per cent. on their saving cent. on the bonus earned by them under the profit-sharing they chose to leave it in the company's hands. The am bonus and savings deposited by their workmen with the co last June, £26,961.; and he might add that their *employés* h a considerable sum in addition in the company's stock. I

question of dividend, it was to be remembered that gas companie raised the capital they required by auction at a very little over 5 cent. At the beginning of this year the company sold a large unt of stock to their consumers, who paid £240. for £100. of stock. vas, therefore, totally incorrect to imagine that they were paying a dend of 13 per cent. to these purchasers or to any one who had held k issued since 1876. He afterwards called attention to the balance rofit shown by the company in the half-years since December, 1888, ting out that "low-water mark" was shown by them in June, 1890, nsequence of the strike at their works, the expenses in connexion which, he incidentally stated, had been £100,000. although they never wavered in their conviction that this money had been well nded. At December, 1891, they showed a profit of £125,000, last June the amount was £145,000. They had very good reason expecting that, unless something totally unexpected occured, they ld next December be enabled not only to pay their dividend but to add something to their reserves. Mr. John Ewart seconded the ion. Mr. Green suggested that it would be beneficial both to the pany and to the consumer if the illuminating power of the gas could educed from 16 to 14 candles. The chairman, in reply, stated that extra candle power mattered very little to the company, but it was atter that affected the consumer very much. Its value was practi- nothing to the consumer, who certainly had to pay twice as much was worth. The difficulty, however, would be to convince the ic authorities of this. The motion was then adopted.

BRUNNER, MOND, AND CO., LIMITED.

he half-yearly meeting of the shareholders in this company was in the Law Association Rooms, Liverpool, on Friday, last week, J. T. Brunner, M.P., chairman of the directors, presiding. The rt showed a balance to the credit of profit and loss account on the cing of the half-year ended the 30th June last, of £261,458., which the amount of £35,916. brought forward from the previous half-, made a total available balance of £297,374. Out of this the ctors proposed to pay a dividend on the preference capital at the of 7 per cent. per annum, and on the ordinary capital of 50 per am (absorbing in all £167,856.), to write £2,500. off the patents' unt, to place £50,000. to reserve fund, and to carry forward to the half-year the balance of £77,018.

n the motion of the Chairman, seconded by Mr. Charles M. land, the report and accounts were unanimously passed, and the dend agreed to.

n the motion of Mr. James Webster it was unanimously agreed the directors of the company, other than the managing director, uld be paid the sum of £500. for their services during the past -year.

Messrs. T. W. Read and Co. were re-elected auditors, and the ceedings closed with a vote of thanks to the chairman.

# Our Book Shelf.

EMICAL THEORY FOR BEGINNERS. By L. Dobbin and J. Walker. 236 p.p. Index. London: Macmillan and Co. 1892.

The purported object of this book is to acquaint students with the nciples underlying modern chemical theories. As the authors ark, students are often but poorly educated in these matters, as y are treated in a very general way in most works on systematic mistry and in the higher class works ignored, since the student upposed to have been thoroughly grounded in such matters previous ommencing to read advanced works.

The object of the work in question is to familiarise the student with se theories, and to give special attention to the full significance of mical formulæ.

From this point of view the work is a useful addition to existing rature, and fulfils its mission. It has rather a misleading name, vever, since it is really a practical explanation of the theories, most them being exemplified by experiments of a thoroughly practical ure. Chapter XII. is a good one, and puts much sound information ore beginners in a clear and concise form. There is an ingeniously trived table in Chapter VIII., which affords about one of the plest, self-contained explanations of Boyle's Law that we have ever n in a work of this kind.

The latter part of this book contains a brief explanation of what is generally understood by the terms solution, electrolysis, dissocia-, equivalence, the kinetic molecular theory, and periodic law. explanations are purely non-mathematical. Although the theories ounded in the explanation of these terms and theories are not ived *in toto* by many chemists, still it is as well that young students uld have sufficient knowledge of what are the best explanations ting up to now, so that they may be fully prepared to appreciate the discussion of such matters when they reach a more advanced stage. Such an opportunity is conveniently accorded by this little work.

CHEMISTRY OF THE ORGANIC DYESTUFFS. By R. Nietzki, Ph.D. Translated by A. Collin, Ph. D., and W. Richardson. 306 p.p., including appendix. Index. London: Gurney and Jackson. 1892.

This work is really an amplification of an article written by Dr. Nietzki for Ladenburg's "Handwörterbuch der Chemie." It has, however, been thoroughly revised, especially in connection with the system of classification, and as this work is intended for a handbook dealing with the chemistry of dyestuffs, it cannot be looked upon as merely a second edition of the article from the "Handwörterbuch," especially as it has been brought up to date by the translators.

The work is well arranged, the classification of the colours making reference easy, and bringing out the relations which exist between constitution and the tintorial properties of the dyestuffs, as the work is intended to do.

The introduction briefly describes the facts upon which the colouring of various compounds depend for their formation, and likewise the action of nascent hydrogen, which is peculiar to those compounds, which act as dyestuffs.

The terms chromophor and chromogen are also explained, and an outline of the chemical theories advanced in explanation of the process of dyeing.

The introduction finishes with a review of the growth of the colour industry from the discovery of pittocal by Reichenbach, in 1832, up to the introduction of the phthaliens in 1888.

The colouring matters described in this work are divided into fifteen classes. It would be impossible to refer to each of these with the various sub-divisions which necessarily exist, and therefore mention can only be made of a few of the most important groups.

Chapter II., on the azo-dyestuffs, contains a useful list of the tetrazo compounds, some sixty in number, which are now on the market. It also contains a description of the method of the direct production of azo-dyes on fibres, according to the process of Messrs. Holliday, and the modification of their process by Messrs. Meister, Lucius and Brüning.

Alizarin is the most interesting and principal feature in Chapter III. which is devoted to the oxyquinones and quinone oximes.

Chapters V., VI., VII., and XI., which follow, constitute the most important portions of the work. The triphenylmethane dyestuffs, to which Chapter V. is devoted, are divided into three sub-divisions, namely, rosaniline dyestuffs, rosalic acid dyestuffs and phthaleins. The principal subjects of interest in these three classes respectively are the accounts of the formation and application of methyl violet and magenta, and aniline blue, aurin, and eosin.

Under azine dyestuffs in Chapter VII. we find Magdala red and mauveine, the properties and reactions of which are described more fully than most of the other compounds. Aniline black has a chapter to itself, which is very interesting reading, the production of aniline black under the heading of Technical Aniline Black being especially so.

Next in order of importance are the indigo dyestuffs, the application of indigo in dyeing and the synthesis of indigo blue receive the chief attention, the description of which is followed by an account of the constitution of the indigo group. Lastly comes those dyestuffs the composition of which is at present unknown. These are 27 in number, some of the better known comprising Haëmaboxylin, which is the principal constituent of logwood, quercitrin curcumin from turmeric, orchil, litmus, which we notice in addition to being so extensively used as an indicator in chemistry, is also used for bluing in laundries and colouring wines, cochineal, carmine red, and catechu.

The appendix consists chiefly of the naphthol yellows and blacks, but also contains some new dyestuffs arranged under the same classification adopted in the work itself.

When remembering the author's intentions the work can only be pronounced highly successful, although wisely refraining from any attempt to describe the technical details of the dyeing processes, a step which would inevitably open the door to many inaccuracies, the accounts of the preparation and application of the dyestuffs is clearly and fully dealt with and render the work a thoroughly practical and highly useful source of technical information for dyers and many others connected with the industry.

THE JEWELLER'S ASSISTANT IN THE ART OF WORKING GOLD. By George Gee. 228 pp. London: Crosby Lockwood and Son. 1892.

This book is intended to be a practical guide for the use of advanced workmen, it being an assistant pure and simple, and not intended for young hands or students. Judging from the information given in the preface as to the facilities which the author had for compiling this book

it ought to become an excellent and almost unique work. It is nicely got up in an attractive style and is printed in an exceptionally bold and clear type for a work of this kind.

The arrangement is good, and by the aid of the ample table of contents, and also the index, the book can be consulted at a moment's notice with exceptional ease.

After describing the chemical and physical properties of gold, the various colours of gold and recovery of gold from waste solutions, we come to the dry and wet colouring of gold, melting, casting, and electro gilding. Chapter X., on practical manipulations, is a good one, as is also the chapter on the collection and refining of lemel.

A chapter is devoted to hints and helps, and we think will be found to fulfil what its heading claims for it. The last chapter (XVII.) consists of a great number of different alloys from 20 to nine carat, and a collection of alloy tables.

There are one or two points where the weak elements in the book crop out.

The chemistry is rather indifferent in places, especially under electro-gilding, where we were somewhat surprised to learn that for those not acquainted with the solution of pure gold, chloride of gold ready prepared was sold by a few chemists. Since the rapid growth of photography as a means of combining pleasure with culture, we should think the few chemists would be those who did not keep gold chloride.

The choice receipts of Chapter XVI. are scarcely all choice, unless dissolving copper in a mixture of chlorous and muriatic acids ranks as such.

The work, however, is on the whole meritorious, and undoubtedly will, to the ordinary manipulator of gold, be a most useful work for reference, containing untold depths of information, and being admirably suited to his requirements.

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Catalogue of Second-Hand and New Books on Chemistry. W. F. Clay, Edinburgh. 1892.

This well-known catalogue of works on chemistry, either applied, theoretical, or technological, brewing, dyeing, metallurgy, agricultural and other sciences, has been lately revised.

It will be found to contain many standard works, some of recent date, at second-hand prices. A good many modern works are now included in the list of works which can be obtained at reduced prices. As a reference price list of current chemical literature this catalogue will be found very useful to chemists in general.

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## THE POISONOUS PRINCIPLE OF THE YEW.

THE question having been raised by Mr. E. P. Squarey, as to whether the male and female yew were both poisonous, some experiments have recently been made at the Agricultural College, Downton. As far as we know the actual poisonous principle of the yew has never been definitely determined, but Mr. F. J. M. Stuart Wortley has taken the matter in hand, and in a letter to the *Times* gives the following account of his work :—

In order to test this theory I took some leaves from a male and from a female yew, and, under Professor Munro's guidance, carried out the experiments of which I give the details.

Professor Munro is of opinion that if the poison in the yew is taxine the experiments go to show that Mr. Squarey's idea is correct.

The following is a short account of the process employed :—

The leaves were air-dried and powdered.

The powder was extracted with ether to remove chlorophyll, wax, etc.

The residue extracted with rectified spirits of wine.

The alcoholic extract evaporated to dryness, and the residue macerated with water and filtered, leaving a quantity of resinous matter undissolved.

The watery solution of the male yew

(1) Was bitter to the taste, therefore probably contains an alkaloid ;

(2) With ferric chloride gives a deep green colour, showing tannin or protocatechuic acid ;

(3) With iodine gives an immediate precipitate, showing alkaloid ;

(4) With litmus paper the liquid was found to be slightly acid ;

(5) A few drops of ammonia were added to the main solution and caused a slight precipitate. The liquid turned dark at the surface, showing the presence of pyrogallic acid, or some similar compound.

(6) The ammoniacal liquid was shaken with benzene and the benzene pipetted off. On evaporation it left a bitter residue, which dissolved in pure sulphuric acid with a deep red colour, thus agreeing with the recognized character of taxine.

Watery solution of the female yew

(1) Was only slightly bitter, therefore probably contains little alkaloid.

(2) With ferric chloride gives a deep green colour, showing tannin or protocatechuic acid ;

(3) With iodine gives a slight precipitate, showing alkaloi

(4) With litmus paper shows the presence of acid ;

(5) The ammonia caused no precipitate, the liquid did no at the surface ;

(6) On shaking with benzene, pipetting off the benzene, ar ting to dryness, a very slightly bitter residue was left, whic immediate red colour on treatment with sulphuric acid.

It is plain from these experiments that taxine, whether o the poison affecting cattle, is contained chiefly or entirely i yew, and that if it is the poison, the female yew may safely as an ornamental tree in parks and pastures where cattle are t

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# Official Memoranda.

*(From the Board of Trade Journal.)*

### THE SICILIAN SULPHUR INDUSTRY.

The United States Consul at Palermo, in a recent rep authorities at Washington, supplies the following inform regard to the position of sulphur mining in Sicily. (See als No. 262, p. 357.)

The Sicilian brimstone industry has lately passed throug that, on the one hand, was most serious in its effects, and on might be considered really beneficial in its results, notwithst fact that many operators have lost heavily on account of duction, expensive system of mining, and a general decline This was partially due to the fact that so many had embarked mining, to the neglect of all other avenues, partially to the system of mining without mechanical appliances, by which t ascended circuitous steps from the bottom of pits 300 to 500 carrying the ore to the surface in bags on their shoulders, an to the excess of supply over the demand. As a result of there was such a decline in prices that mines were either ope loss or closed. Many abandoned their mines, and the would have shown greater decrease had not many owners and fire to their mines, extracting melted sulphur, in order expenses, regardless of waste and damage to their property.

The result of the crisis that might be considered really a b sisted in forcing Sicilian brimstone-miners to supplant the o with more modern means. In the second half of 1890 prices unexpected and brisk rise, the industry to show more ac naturally the first consideration, in view of former experience means of operating at less expense, resulting in numerous in the adoption of steam power and mining machinery, strange seem, hitherto unused.

Sicilian ignorance of modern inventions was shown in the large mine at Lercara, in the centre of the island, wherein t agreed, by the usual form of indenture, among other things, at their own expense, a means of bringing the ore to the sur the lessees—an enterprising American and an Englishman— a "scala" (the steps above mentioned), opened a shaft and mining machinery at an expense of several thousand dollars, them to produce several times the quantity per day that possible by means of a scala, and, although the lessor received per ton on the production, his prejudices against an inno machinery were so strong that, contrary to his own interests, h the terms of the contract violated by the failure to establish found a court concurring in this antiquated view, ousted th removed their machinery, and, after nearly two years' litiga have just obtained possession of their property by virtue of a of a higher court.

Since the latter part of 1890 prices have maintained a st apparently healthy rise, sulphur now commanding an avera dollars per ton at the mines, stimulating an increasing activity out the brimstone districts. And yet this chief branch o industries is not exempt from fears and dangers. It is not ove tion alone that causes alarm ; there is also the danger of los American market through the strong competition of sulphu This has been found so advantageous that most of the sulphu England is produced from pyrites, and it is viewed here as th aspect of the industry.

The export of brimstone is confined to the ports of Girgenti, Licata, and Catania. The amounts exported from named during the five years ended December 31st, 1891, follows :—1887, 4,046,927 cantars (cantar = about 98 lbs. 4,521,075 cantars ; 1889, 4,568,866 cantars ; 1890, 4,474,781 and 1891, 3,809,536 cantars.

The exports to the United States were largely in excess of any other country, constituting a large proportion of the c between Sicily and the United States.

# Trade Notes.

AL. PAINT DEPOSIT.—An eight-foot vein of mineral paint, four colours, has been discovered in the United States of ear Cameron, Mo.

EMICAL TRADE OF ITALY.—During July of this year, 841 ali were imported into this country from Great Britain. In , 891 tons of alkali were imported, making a decrease in the of 50 tons as compared with the figures for the same period

EMENT WORKS.—A company has been formed at Mönchen- e known as the Mönchenstein Portland Cement Fabrik, to e manufacture of Portland cement.

D DUTY ON SALT.—With a view to putting an end to the of salt, a measure has recently been voted by the Second to readjust the taxation in the Netherlands. The excise on een reduced from nine to three florins, and the import duty e to four—a reduction in both cases of 66 per cent.

ACTURERS AND RIVER POLLUTION.—On Tuesday, of this rcular was sent to all manufacturers situated on the banks of Mersey and Irwell, calling attention to the clauses in the d Irwell Joint Committee Act of 1892, relating to liquid and advising manufacturers to give the report of Sir H. copy of which has been sent to them—their careful con-

AL.—Science has been honoured by the inclusion of Professor the Privy Council. It must have been a difficult task to ctly what honour should be conferred on the illustrious nd there is something incongruous in his being made a Privy ; but no honour has been won by greater merit.

N PLAYFAIR, who at one time was Professor of Chemistry al Institution, Manchester, has also been created a Peer.

ALIAN MINERAL OIL TRADE.—The decree concerning the 5% on wooden cases containing two tin receptacles filled ral oil has been prolonged till June 30th, 1893. Two or to this date, the King's Government will introduce a bill re convenient regulation of the allowance for tare. Two the duties levied on chemicals have also been made, cryolite exempt from duty, and chromium fluoride dutiable at 4 lire , that is to say about 3s. 2½d. per 220 lbs.

POLLUTION AT GLOSSOP.—At the meeting of the Glossop ncil on Wednesday, last week, a letter was read from the County Council stating that very serious complaints had to the Public Health Committee with reference to the pol- e river Etherow, by the sewage of Glossop. These com- been very frequent, and now a formal complaint had been e Joint Committee for the prevention of the pollution of the sey and Irwell. The matter was of pressing importance, and ttee felt that some steps should be taken to abate the nuisance ther delay. A long discussion ensued, and it was pointed he Corporation had no means of disposing of the sewage he rivers. Ultimately a committee was formed to consider


## NOTICES.

### LONDON AGENTS.

oksellers and Newsagents may now obtain supplies of

THE CHEMICAL TRADE JOURNAL

From

MR. JOHN HEYWOOD,

2, Amen Corner,

Paternoster Row, E.C.,

trade terms.

### FOREIGN REMITTANCES.

the inconvenience created by the various ways in which oscriptions are remitted, we respectfully beg to inform that a *Crossed* MONEY ORDER is the most satisfactory remitting, both for them and ourselves. In the case of a der, a letter advising us of same should always be sent, owing to post-office ormalities, much delay in tracing and ging foreign remittances is inevitably entailed in this country.


# Correspondence.

**** We do not hold ourselves responsible for the opinions expressed by our correspondents.*

## *ANSWERS TO CORRESPONDENTS.*

J. L. (Huddersfield).—There are not a great many firms in the Manchester district, likely to suit your purpose; Mitchell Bros., of Waterfoot, is the only one we have heard of.

B. B.—It appears this week.

J. M. M.—We have not received the electro yet, but hope to do so in the course of the next few days.

L. V. (Paris).—We could not obtain all three, but hope the two we have sent will be of use to you.

F. D —Number 271, July 30th, 1892.

INQUIRER.—Unless received by Tuesday next it will be too late.

## THE PROFITS OF FOREIGN ANILINE COMPANIES.

*(To the Editor of the Chemical Trade Journal.)*

SIR,—Your correspondent "Aniline" does not touch one cause why the German colour works have outstripped English manufacturers even in England. A large quantity of both ethyl and methyl spirit is used in the manufacture, the former in Germany is about one-half the price it is in England, and the latter about one-fifth, the difference being due to the duty our Government imposes on the manufacture of these two articles, while the colour produced comes in free of all charge.

Yours, etc ,

B. BIGGS.

London, 22nd August.

## THE INSTITUTE OF CHEMISTRY EXAMINATION.

*(To the Editor of the Chemical Trade Journal.)*

DEAR SIR,—In reference to your article of the 23rd ult., on the recent examination for the Associateship of the Institute I would like to make a few remarks as to the arrangements.

First. The laboratory arrangements were very inefficient, the fume chamber being only capable of accommodating six men at a time, necessitating the laboratory to be filled with nitric oxide gas and arsenious vapours. Again, the sinks and water supply were in most inconvenient places, one at the end of each bench accommodating four men. Some benches being without any supply whatever, necessitated the fixing up of a water supply for Liebeg condensers in stock bottles, which caused great waste of time. The number of water or steam baths was not sufficient, causing delay to many, who had to wait their opportunity. The number of combustion furnaces was about six, most of which were unable to accommodate more than one tube at a time, and there being 37 candidates, the second lot of men arrived to find the furnaces red-hot throughout, causing delay for cooling.

Secondly. With regard to the apparatus, there were several small, but nevertheless necessary things which add to the comfort of working, that were wanting. It was noticed each day that cabs were frequently brought into requisition, to convey apparatus which had been overlooked. The soiled apparatus was supposed to be cleaned each evening, but each morning it was found upside down, having been once carelessly rinsed (the operators had evidently not had sufficient training in the art). This also caused a waste of time to candidates. Some of the reagents were very dilute, and delay was caused to many in getting concentrated acids and solutions, fuming nitric acid being totally absent.

Thirdly. As regards the time allowed, 10 a.m. to 4 p.m., deducting a compulsory hour, 1 p.m. to 2 p.m. for lunch, many had to leave an all-but completed morning's work till after lunch. On the fifth day there was a misprint in the examination paper, 10 a.m. to 5 p.m. being stated as the time allowed; the error was not announced to the candidates till an hour before the usual departing time.

I think the experience of this examination ought to show the absurdity of bringing all the men to London, as the arrangements, supply of apparatus, and space to the comfort of 37 candidates, who come to a totally strange laboratory, are too collossal to be made with any degree of efficiency.

I shall not criticise the amount of work given on the examination papers each day, but as you have published them I shall leave it to your readers to judge for themselves, taking the serious difficulties candidates had to contend with into account.

I hope these facts may be useful to those who may have the management of future examinations. Apologising for trespassing on your space, and thanking you in anticipation.

Yours, etc.,

A Candidate.

[Though the remarks of our correspondent are in the main correct, we must beg to differ in regard to the unfavourableness of London as a general centre. Provided good arrangements are made (and they readily could be) the examination would be an infinitely fairer test than when held at numerous centres, where candidates are subject to varying conditions and circumstances.—Ed. *C.T.J.*]

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

There is very little of importance to report in the tar products market, without it be that the cholera scare will cause a demand for carbolic, and it is to be hoped that merchants and makers of the crude article will be a little more discreet in the quality of the material they send out than was the case a few years since.

The sulphate of ammonia market is still very quiet and the agent of the Gas Light and Coke Co. still quotes £9. 17s. 6d., but it is understood that he cannot arrange sales at this price, consequently it is expected that prices will go lower as soon as the large make commences. London outside makes are in fairly good demand at prices ranging from £9. 16s. 3d. to £9. 17s. 6d. Hull business has been done at £9. 16s. 3d., but buyers are endeavouring to secure their requirements at £9. 15s. At Leith, the market price to-day may be quoted as £9. 15s, but sales have been reported at as low as £9. 13s. 9d. and as high as £9. 16s. 3d.

## REPORT ON MANURE MATERIAL.

Business in phosphatic and ammoniacal material continues to be very dull, there being scarcely any disposition on the part of buyers to go on purchasing even at the low prices touched.

There are sellers of 75/80% Florida rock at 8½d. per unit, in cargoes, c.i.f. to U.K. Hot-air dried Peace River rock is still held for 7½d., but 7d. would probably be business for cargoes of South Carolina River or land rock. Quotations for Canadian and Continental phosphates are without alteration.

The nearest value of cargoes of River Plate bones is probably about £4. 5s., but shippers' ideas are considerably higher and meantime we do not hear of any business. For crushed Kurrachee bones £4. 2s. 6d., ex quay Liverpool, would still be business. £4. 5s., ex quay Liverpool, bid and refused for Bombay bone meal, fair average quality, for shipment, £4. 7s. 6d. is required. From store, the quotations are £4. 2s. 6d. to £4. 10s., according to quality. Common grinding bones are in less demand, and £3. 12s 6d. to £3. 15s. per ton, now full value for good clean dry parcels. Bone ash is quoted £3. 12s. 6d. for 70%, nett Hamburg terms, but we do not hear of any business at the price.

The position of nitrate of is much as last reported. Spot value is 8s. 3d. per cwt. for ordinary quality, and 8s. 6d. for refined. Cargoes at Coast are worth 8s. 1½d. to 8s. 3d., according to size and test. For cargoes at a little distance 8s. 4½d. asked. June sailings are worth about 8s. 6d, August 8s. 7½d, and October-Novembers about 8s. 10½d., but buyers are not keen at these figures.

## LIVERPOOL OIL AND COLOUR MARKET.

Wednesday.

OILS.—Palm oil continues firm, sales during the week have been rather restricted, but there was more doing yesterday, and to-day Lagos is selling at £21.; Cameroon, £19. 15s.; and Accra, £19. 17s. 6d. Olive is firmly held, the business passing is small. Candia is quoted £35. Neapolitan, £36. to £37. per tun. Linseed is easier, prices ranging from 19s. to 20s. 6d. in export casks. Cottonseed: Liverpool refined has been selling fairly at the decline, but prices are tending still further in buyers' favour, being now quoted 18s. 6d. to 18s. 9d per cwt.; American, 21s. to 24s. Castor oil: good seconds Calcutta is quoted 2$\frac{7}{16}$; first pressure French, 2$\frac{11}{16}$. Tallow is steady, but there is really nothing doing. Resin, common, is selling at 3s. 9d., but the market generally is quiet. Spirits of turpentine is now quoted 22s. 3d, being steady at this figure however, with a moderate demand. Petroleum: American, 5d. to 6¼d., according to quality; Russian, 4⅜ to 4½ per gallon.

COLOURS.—No change. Ochres: Oxfordshire, com medium, £12., best, £15.; Derbyshire, common, 40s., me best, 60s. Welsh, best, 70s., seconds, 50s., and common, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60 65s. to 67s. 6d. Umber: Turkish quiet. Devonshir 55s. White lead, red lead, and oxide of zinc unchanged. red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. Oxide of iron: common, £6.; medium, £10.; finest, £20.

## MISCELLANEOUS CHEMICAL MARK

We have to report a fair week's business in all kinds of Bleaching powder continues firm and in good demand at £ and £7. 5s. for contracts. Caustic soda still rather dull, bu unchanged. We quote 77% white, £11. 15s., Tyne; 70%, £ 60%, £9.; 60% cream, £8. 15s., all rails Lancs. Sod freely both for home and export; no change in prices. Sc steady at £3. 9s. brls., £2. 18s. bags. Saltcake in modera Chlorate of potash quiet at 6¾d. Soda still scarce at 8d. sulphur in moderate demand at £4. 15s., rails; roll rather prompt delivery at £7.; flower, £10.; litharge, with improvement at £14. Foreign white sugar of lead falling: is full value to-day; brown, £17. Nitrate, £20 Aceta rather firmer: we quote brown, £6.; grey, £11. for sp Acetate of soda continues somewhat scarce: £18. to £18. quoted, but resale lots can be had at lower figures. Sulphat steady and in better demand at £15. 10s. f.o.b. Prussiate and soda quiet at 10¾d. and 7¾d. Sulphocyanides of amu barium difficult to sell. We quote ammonium, 7d.; b Borax and bichromate move slowly at the convention prices acid keeps in good demand but prices remain about the sam 70's, 1s. 7d. per gallon; 60's, 1s. 6d. per gallon. Crysta 5½d. per lb.; 34/35, 5d. per lb.

## THE METAL MARKETS.

LONDON, Wednesday.—Pig iron firm. Scotch warr at 42s. 5d. cash. Middlesbrough 40s. 6d. cash, and 50s. cash. Copper quiet: Chili bars, G.O.B.'s and closed at £44. 1s. 3d. cash, and £44. 10s. to £44. 17s months. Tin dull: Straits closed at £93. 2s. 6d. to £93. 12 and £93. 2s. 6d. to £93. 12s. 6d. three months. Australian, £ cash. English ingots, £96. to £96. 10s. Lead steady £10. 7s. 6d.; English, £10. 10s. to £10. 12s. 6d. Siles ordinary, £21. Quicksilver: first hands, £6. 15s., sec £6. 19s. *Copper shares* quiet: Cape, 1½ to 1⅝; Copia 2$\frac{3}{16}$; Libiola, 2⅞ to 3⅛; Mason and Barry, 2⅜ to 2½; 14$\frac{13}{16}$ to 14$\frac{15}{16}$; Tharsis, 4⅜ to 4½; Namaqua, $\frac{11}{16}$ to $\frac{13}{16}$; $\frac{5}{16}$ to $\frac{7}{16}$.

WOLVERHAMPTON, Wednesday.—Reports brought indicate a steady feeling both in manufactured and crud quotations are sustained at their recent level. Galvanised sheets are quoted £6. 12s 6d. for 24 gauge; ordinary sheets £7. 5s. for doubles; marked bars, £8.; medium, £7.; co Hoops, £6. 12s. 6d. Cinder pigs are quoted 38s. 6d. to 40 mine hot blast, 63s 6d. to 65s.; Northamptons, 44s. to 45s. about 47s. 6d.

GLASGOW, Wednesday.—Market steady. A modera done in Scotch at 42s. 5d. and 42s. 4½d. cash, and 42s. 7d. buyers at 42s. 4½d. cash and 42s. 6½d. one month, sellers cash. Middlesbrough, buyers, 40s. 6d. cash; seller Hematite, buyers, 50s. cash; sellers, 51s.

## THE LIVERPOOL MINERAL MARK

The market is steady. Manganese: Arrivals larger, bu into consumption; stocks further reduced, and prices s Borate, 7d. per lb.; sulphate £21. 10s.; oxalate, 1s. 6 chloride, £15.; carbonate, £12. 10s., steady. Magnesite Stocks renewed with an arrival; prices firm. Raw groun and calcined £12. 10s. Bauxite (Irish Hill brand) firm; seconds 16s., and thirds 12s. French chalk: Arrivals sm business, however, is doing at full prices. "Angel White"

very," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine,
Barytes: Carbonate, best lump scarce and brings full prices at
to 95s.; nuts, 70s. to 80s.; whilst finest white sulphate is in
nd. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3,
Pumicestone quiet. Iron ore freely offered; prices easy; Bilbao,
and Cumberland easier. Santander and manganiferous, there is
doing. Emerystone: Good demand; No. 1 lump, £5. 10s. to
smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.;
impalpable ground, £7.; "Emerald" ground, 80s. Scheelite,
am, tungstate of soda, and tungsten metal firm: good inquiry.
me ore: Good demand for best qualities for export. Antimony
nd metal quiet; prices better. Asbestos very firm. Potters' lead
smalls, £10. 10s. to £11. 10s. Calamine quiet. Strontia sulphate
stine) quiet. Limespar steady, especially for English manufactured;
.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar:
quality scarce. Ferro-manganese: Prices are unchanged.
bago: Spanish, £5.; best Ceylon lump at last quotations;
n and Bohemian, £4. to £12. per ton. "Founders," £5.
6.; Blackwell's "Mineraline," £10. Frenchsand, 20s. to
5d. Ground mica, £45. to £50. China clay steady; common,
6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at
orn). Bog ore (oxide of iron) steady; finest quality 22s. to 23s.

## TYNE CHEMICAL REPORT.

TUESDAY.

emicals steady, rather more doing in soda crystals and soda ash.
sulphur in better demand and makers now ask £5. Bleaching
er still very scarce.
eaching powder, softs, £7. 10s. to £7. 12s. 6d. per ton nett,
hards, £7. 15s. to £7. 17s. 6d. per ton; caustic soda, 77/76%,
15s. per ton nett, 70%, £10. 5s. per ton; recovered sulphur,
vt. bags, £5. per ton; soda ash, 48%, £5. 8s. 9d.
ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d.
ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali,
£6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52%
per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton,
in 1 cwt. kegs, £7. 15s. per ton, in 10 ton lots; silicate of soda,
Tw. £3. per ton, 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per
soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in
t. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 7d.
b. less 6%; pearl hardening, £3. 10s. per ton nett; pure white
ate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton;
ide of barium, £7. 10s. per ton; nitrate of baryta crystals, £19.
on; ground, £19. 10s. per ton; sulphide of barium, £7. per ton;
onate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s.
on; hydrate of barium, £11. per ton.
uth Durham salt shows no alteration; price quoted being 9s. 6d.
s. per ton.
oals steady; price being 10s. 6d. per ton, f.o.b. Tyne, for best
humbrian steam; 4s. to 4s. 6d. for small steam; 8s. 6d. for gas
s, with good enquiry; 15s. to 17s. per ton for Coke.

## THE COPPER MARKET.

essrs. Harrington and Co., in their fortnightly report, dated
rpool, August 17th, 1892, say:—The Chili charters for the past
ight are advised as 1,000 tons, and exchange 18⅜d. The total
ters since 1st January are 14,150 tons. Exchange has since been
d as 18¼d.
uring the past fortnight all business in copper has been very dull,
the transactions in G.m.b.'s comparatively small, not exceeding an
ge of 400 tons per day, and values not varying more than 8s. 9d.
on; prices at the commencement were £44. 12s. 6d. cash, and
2s. 6d. three months, closing to-day at £44. 3s. 9d. and £44. 15s.
ctively.
e s. "Kepler," just arrived here from New York, brought 427
Newfoundland copper ingots, sold to Birmingham consumers.
e s. "Ouse," from Bordeaux, brought 250 tons bar copper, which
transferred to the Swansea stocks.
e total stocks in Liverpool, Swansea, London, and Havre show
crease of 2,493 tons for the fortnight.
e stocks include about 6,300 tons of copper sold, but not yet
ered to smelters.
e visible supply shows an increase of 2,616 tons for the fortnight,
he total deliveries for the fortnight are 3,012 tons.
e present stock of English G.m.b.'s in warehouse, Liverpool and
sea, is 2,667 tons, against 2,827 tons on the 2nd inst. The delivery in Liverpool and Swansea was 200 tons, but 40 tons being added to the Swansea stock, makes the decrease 160 tons for the fortnight.

Refined and manufactured sorts are quiet. Official quotations being:—Tough cake, £47. 10s. to £48.; best select, £48. 10s. to £49.; Indian sheets, £52. to £53.; strong sheets, £56.; and yellow metal sheets, 4¾d. to 5d. per lb.

The sales of furnace material comprise—at Liverpool: 1,000 tons ordinary Montana matte, to arrive, at 9s.; 350 tons Chili regulus, at 9s.; 94 tons argentiferous Chili regulus, on private terms; 250 tons Cueva de la Mora precipitate, at 9s.; 58 tons Californian ore, at 8s. 6d.; 250 tons Mexican ore, at 8s. 3d.; and 240 tons Portuguese ore, at 7s. 6d. to 7s. 9d. per unit. At Swansea: *Nil.*

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

We are having a very palpable touch of the great heat wave just now, with, as one of the consequences, the usual effect upon the manufacture of some chemicals. Soda crystals are scarce, and prices very firm though without any rise. The call for bleaching powder is still very active and this article is also scarce, with the top quotation as given below readily procurable. Large quantities are being used by sanitary authorities everywhere. The other ordinary chemicals are unchanged in price and continue idle.

There is no recovery to report in sulphate of ammonia, possibly there has been the opposite tendency on the move, for there was at least one lot done towards the close of last week at £9. 13s. 9d. prompt Leith. The bulk of the makers, however, will not as yet look at anything below £9. 15s.

In paraffins there is nothing new. According to the compact recently tightened up again, 62 per cent. of each makers turn-out of burning oil must be sold in Scotland at the higher prices. Paraffin scale and wax still neglected.

Chief prices current are:—Soda crystals, £2. 17s. 6d., nett Tyne; alum in lump, £5. 10s., nett Glasgow; soda ash, 1⅜d., less 2½%, Tyne; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. nett Liverpool; refined alkali, 1⅝d., less 2½% Tyne; bleaching powder, £7. 12s. 6d. nett Tyne; saltcake, 36s. 6d.; borax, English refined, £29., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 6½d., less 5% any port; nitrate of soda, 8s. 6d.; sulphate of ammonia, £9. 13s. 9d. to £9. 15s. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £14. 17s. 6d. less 5% Liverpool; paraffin scale (hard) 2$\frac{15}{16}$d., and soft 2$\frac{5}{16}$d. to 3d. per lb.; paraffin wax, 120°, semi-refined, 3⅝d. to 4d.; paraffin spirit (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales about 1d. lower); ditto (lubricating), 865°, £3. 5s. to £3. 15s., 885°, £4. 10s. to £6., and 890/895°, £5. to £7. Week's imports of raw sugar at Greenock were 41,816 bags.

# New Companies.

HECLA OIL CO., LIMITED.—This company was registered on the 17th inst., with a capital of £5,000., in £1. shares, to test, acquire, develop, and turn to account secret processes, inventions, patents, etc., connected with the treatment of oil and other substances, and to carry on the business of manufacturers of refined oil in all or any of its branches.

JAMES DERBYSHIRE AND SONS, LIMITED.—This company was registered on the 16th inst., with a capital of £10,000., in £5. shares, to acquire, take over as a going concern and to carry on the business of a glass manufacturer carried on by G. W. Plummer at Regent-road, Salford; City-road, Manchester; and elsewhere, under the style of "James Derbyshire and Sons," and with a view thereto to adopt an agreement dated August 3, 1892, between Mr. G. W. Plummer of the one part and Mr. R. Brutton (for the company) of the other part. The subscribers are:—

| | Shares. |
|---|---|
| A. Sinclair, Oakdale, Irlams on the Height | 1 |
| R. Brutton, 77, King's-street, Manchester | 1 |
| W. Moss, 5, West Clowes-street, Eccles New-road, Salford | 1 |
| J. H. Derbyshire, 113, Stowell-street, Weaste, clerk | 1 |
| J. H. Crompton, 28, Hatton-street, Moss Side, Manchester, clerk | 1 |
| C. Davies, 9, Alexander-grove, Trafford-road, Salford | 1 |
| H. Brown, 172, Ordsall-lane, Salford | 1 |

Kernick and Son, Limited.—This company was registered on the 13th inst., with a capital of £5,000., in £5. shares, to acquire and carry on the business of wholesale and manufacturing chemist and grocers' sundriesman carried on by Mr. R. P. Kernick at Cardiff, under the style of "Kernick and Son," and with a view thereto to enter into an agreement between Mr. R. P. Kernick of the first part, Louisa Kernick of the second part, and Mr. D. Harris (for the company) of third part.

London Gum Co., Limited.—This company was registered on the 11th inst., with a capital of £20,000., in £1. shares, to enter into and carry into effect the agreement dated August 8, 1892, between Messrs. J. F. Drescher and W. Moses of the one part, and Mr. J. R. Walle (for the company) of the other part, and to carry on the business of gum merchants and manufacturing chemists under the patents of L. Kern. The subscribers are:—

| | Shares. |
|---|---|
| J. F. Drescher, 25, Camden-grove, Peckham, S.E. | 1 |
| R. Guy, 82, Bishopsgate-street, Within, E.C. | 1 |
| G. Graveley, 1, Home-villas, Sydney-road, Enfield | 1 |
| W. Moses, 13, Rodney-terrace, Lower Richmond-road, Putney | 1 |
| H. M. F. Drescher, 5, Pope's-road, Brixton, S.W. | 1 |
| C. H. Revill, 105, King's-road, Peckham | 1 |
| J. Filley, 9, Trafalgar-road, Dalston | 1 |

Lothammer's New Gas Co., Limited.—This company was registered on the 11th inst., with a capital of £10,000, in £1. shares, to acquire certain letters patent and patent rights for and in respect of an invention by Mr. F. J. Lothammer of an improved portable apparatus for the manufacture of gas; to enter into an agreement with Messrs. E. Batiste and A. Rousselle, and to manufacture, sell, and deal in gas-generators, gas and other engines and apparatus for the production and utilisation of light, heat, and power. The subscribers are:—

| | Shares. |
|---|---|
| E. Marcellot, Paris, manu acturer | 1 |
| F. J. Lothammer, 13, Rue Chauvelot, Paris, engineer | 1 |
| C. Denis, 38, Gare de la Chapelle, Paris, clerk | 1 |
| J. Lardant, 3, Rue Gustave Courbet, Paris, clerk | 1 |
| L. G. Hautefeuille, 45, Rue des Epinettes, Paris, clerk | 1 |
| E. H. Gill, 17, Grange Park, Thornton Heath, clerk | 1 |
| J. Hilleard, 84, Alvey-street, Walworth, clerk | 1 |

# The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

## APPLICATIONS FOR LETTERS PATENT.

**Desulphurising Zinc Ores.** P. Hart. 14,264. August 8.
**Improvements in the Manufacture of Paper.** J. Fletcher and W. Fletcher. 14,270. August 8.
**Manufacture of Alphanaphthol, etc.** C. D. Abel. 14,301. August 8.
**Electricity Meters.** F. Teague, E. F. Moy, and J. A. Iliffe. 14,309. Aug. 8.
**Purifying Water.** A. Goldthorp. 14,313. August 8.
**Obtaining Lanoline and Soap from Wool Grease.** G. B. Main. 14,328. August 9.
**Artificial Stone Composition.** J. E. Keseling and C. Fuchs, jun. 14,336. August 9.
**Mineral Oil Burners.** J. A. Vagner. 14,348. August 9.
**Chemical Extraction of Seed Oils.** E. S. H. Wraith and E. Stephenson. 14,352. August 9.
**Improved Soap.** J. Kennedy. 14,354. August 9.
**Drying Sewage Sludge.** J. Lowe. 14,370. August 9.
**Refining Petroleum.** J. A. Wanklyn and W. J. Cooper. 14,374. August 9.
**Bleaching, Dyeing, and Sizing Textile Fabrics.** W. E. Aykroyd, W. Aykroyd, and J. Smith. 14,375. August 9.
**Solidifying Liquid Hydrocarbons.** C. H. Ridsdale. 14,383. August 9.
**Electric Furnaces for Treating Auriferous Sulphide Ores.** J. W. Cann R. E. Commans. 14,395. August 9.
**Blue and Bluish-Green Colouring Matters,** Brooke, Simpson and Spiller A. G. Green. 14,398. August 9.
**Desulphuration of Oils.** H. H. Lake. 14,405. August 9.
**Drying Salt.** C. A. Barnes, and W. S. Broadbent. 14,413. August 9.
**Continuous Refining of Sugar.** L. E A. Piangey. 14,419. August 10.
**Washing, Soaping, Bleaching, etc., Textile Fabrics.** J. Schmidlin. 14 August 10.
**Electricity Meters.** A. Wright. 14,423. August 10.
**Extracting Auriferous Alluvial Earths.** S. S. Bromhead. 14,451. Aug.
**New Colouring Matters.** H. E Newton. 14,478. August 10.
**Manufacture of Illuminating Gas.** B. Parkin. 14,490. August 11.
**Photographic Developers.** J. Hauff. 14,542. August 11.
**Manufacture of Tin and Terne Plates.** R. Taylor and D. Davies. 14 August 12.
**Dyeing with Aniline Black.** H. E. Newton. 14,593. August 12.
**Production of Carbonic Acid Gas.** H. H Lake 14,607. August 12.
**Manufacture of Muriate of Ammonia and other Bye-Products.** M. D'Andria. 14,642. August 13.
**Production of Dry Hydrochloric Acid Gas.** A. Hof. 14,645. August 13.
**Manufacture of White Lead** A. J. Smith. 14 656. August 13.
**Extraction of Alumina from Bauxite, etc.** A. Hand and H. Kunz 14,657. August 13.
**Electric Batteries.** A. J. Smith. 14,658. August 13.
**Grinding, Pulverising, and Disintegrating Apparatus.** J. U. Ask 14,663. August 13.
**Purifying Sewage and other Foul Waters.** C. Dreyfus. 14,654. August
**Manufacture of Proto and Per-Sulphate of Iron.** C. Dreyfus. 14. August 13.

# Gazette Notices.

## PARTNERSHIPS DISSOLVED.

T. Cattley, M. H. Cattley, and H. T. Cattley under the style of Aude and Cattley, Great Suffolk-street, Southwark, soap manufacturers, as fa regards M. H. Cattley.

H. J. Coward and W. H. Taggart under the style of the Bath and We England Briquette and Steam Fuel Co., Tiverton-on-Avon, briquette patent fuel makers, as far as regards H. J. Coward.

## BANKRUPTCY ACTS, 1883 and 1890.

### Adjudication.

Parker, Jackson (trading as J. Parker and Co.), Wakefield, soap manufactur

### Deed of Arrangement.

Thomas Metcalf and Co. (Thomas Metcalf), chemical manufacturer, I Chemical Works, Clayton, and 322, Queen's-road, Manchester.

| | | | | | |
|---|---|---|---|---|---|
| Hurst Mills Co. | Ashton-under-Lyne | £43 | 8 | [illegible] |
| Jackson, Thomas | Manchester | 54 | 6 | [illegible] |
| Bird, Isaac | ,, | 37 | 3 | [illegible] |
| Nichols, D. | ,, | 10 | 0 | [illegible] |
| Cawthea, Thomas | ,, | 10 | 0 | [illegible] |
| Sutton, James | ,, | 15 | 0 | [illegible] |
| Shaw, David and Co. | ,, | 473 | 8 | [illegible] |
| Williams, J. W. | ,, | 20 | 2 | [illegible] |
| Welch, Frederick | ,, | 15 | 0 | [illegible] |
| Bradford Colliery Co. | ,, | 14 | 1 | [illegible] |
| Marple Local Board | Marple | 21 | 14 | [illegible] |
| Middleton Corporation | Middleton | 299 | 12 | [illegible] |
| Unsecured Liabilities | | 1,086 | 9 | [illegible] |
| Estimated Net Assets | | 757 | 7 | [illegible] |
| Secured Creditors | | 238 | 12 | [illegible] |

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending August 13th.*

**Acetic Acid—**
Holland, 10 pkgs. T. H. Lee
,, 25 Beresford & Co.
,, 27 Soundy & Son

**Acetone—**
Holland, 26 pkgs. A. & M. Zimmermann

**Alkali—**
France, 210 c. Arnati & Harrison
Belgium, 500 Knight, Hill, & Co.

**Antimony—**
France, 30 t. J. Bamber

**Asbestos—**
Holland, £25 W. H. Carey & Sons
U. States, 400 Bell's Asbestos Co.

**Barytes—**
Holland, 23 cks. J. Kitchin, Ltd.
,, 19 W. Pope & Co.
,, 23 W. Fenton
Germany, 19 T. T. Creed
Belgium, 22 Beck & Pollitzer

**Boracic Acid—**
Holland, 40 pkgs. J. Puddy & Co.

**Borate of Manganese—**
Germany, £20 Petri Bros.

**Bromine—**
Germany, £20 A. & M. Zimmermann

**Caoutchouc—**
Madagascar, 130 c. Procter Bros.
Penang, 98 L. & I. D. Jt. Co.
Singapore, 162 ,,
Zanzibar, 13 Anderson, Weber, & Smith
Madagascar, 51 Lewis & Peat
,, 32 A. Cheney & Co.
,, 861 L. & I. D. Jt. Co.
Cape Town, 300 Union L. Co., Ltd.
U. States, 214 Williams. To & Co.,
Madagascar, 18 Prop. Bull

**Carbonic Acid Gas—**
Holland, 5 pkgs. Volcanic Æri

**Chemicals** (*otherwise undescrib*
Holland, 10 pkgs. J. C
Germany, 73 £6 T. H.
,, 8 W. J. C
,, 8 C. Atkins & N
Holland, 6 Carey &
,, 30 Phillipps & G
Germany, 98 A. & M. Zimmerm
,, 1 Phillipps & G
,, 1 L. & I. D. Jt
France, 1 Hernu, Peron, &

**Cream of Tartar—**
France, 16 pkgs. B. & F. Wf. Co., Ltd.
,, 5 M. Ashby, Ld.
,, 10 W. C. Bacon & Co.
,, 2 J. L. Lyon & Co.
Italy, 3 Italo-Brit. S. N. Co.
Spain, 24 B. & F. Wf. Co, Ltd.
U. States, 31 L. & I. D. Jt. Co.
Spain, 10 C. Christopherson & Co.
Holland, 40 Middleton & Co.

**Dyestuffs—**
**Aniline**
Germany, 2 pkgs. H. Lambert
**Annatto**
Ceylon, 121 pkgs. Hoare, Wilson, & Co.
**Anthracene**
France, 40 pkgs. Hernu, Peron. & Co.
**Argols**
Italy, 9 pkgs. Thames S. T. & L. Co., Ltd.
France, 18 Ross & Deering
Cyprus, 54 Dunlop Bros.
,, 54 Cyprus Co, Ld.
Italy, 1,343 B. Jacob & Sons
**Cochineal**
Canaries, 20 pkgs. F. Huth & Co
,, 33 W. M. Smith & Sons
**Extracts**
France, 20 pkgs. Prop. Chmbln's. Wf.
Belgium, 50 Leach & Co
Denmark, 5 R. J. Fullwood & Co.
Austria, 148 Italo-Brit. S. N. Co.
U. States, 1,173 A. J. Humphrey
**Gambier**
Singapore, 152 pkgs. R. & J. Henderson
,, 439 L. & I. D. Jt. Co.
,, 681 E. Boustead & Co.
,, 84 Elkan & Co.
,, 121 Brinkman & Co.
,, 171 Baxter & Hoare
,, 218 Adamson, Gilfillan, & Co.
**Indigo**
Holland, 5 chts. L. & I. D. Jt. Co.
E. Indies, 6 F. Huth & Co.
,, 13 W. Brandts, Son, & Co.
,, 2 Arbuthnot, Latham, & Co.
,, 9 Benecke, Souchay, & Co.
,, 36 L. & I. D. Jt. Co.
,, 218 Wallace Bros.
,, 3 D. Sassoon & Co.
,, 24 Schenker & Co.
**Myrabolams**
E. Indies, 621 pkgs. J. Graves
,, 683 Hoare, Wilson, & Co.
**Naphthol**
Germany, 3 pkgs. T. H. Lee
**Orchella**
Madagascar, 8 pkgs. Proctor Bros.
**Saffron**
Spain, 1 pkg. B. & F. Wf. Co., Ltd.
**Sumac**
Italy, 36 pkgs. M. D. Co.
Cyprus, 770 Dunlop Bros.
,, 770 Cyprus Co., Ltd.
Italy, 200 W. France & Co.
,, 400 Beresford & Co.
,, 500 J. Graves
**Tanners' Bark**
Melbourne, 106 t. Flack, Chandler, & Co.
,, 20 N. Z. L. & M. A. Co.
Canada, 70 S. Barrow & Bros., Ld.
Belgium, 27 Leach & Co.
**Turmeric**
Japan, 283 pkgs. B. & F. Wf. Co., Ltd.
Cochin, 101 L. & I. D. Jt. Co.
**Valonia**
A. Turkey, 50 t. A. & W. Nesbitt
,, 26 Boutcher, Mortimore, & Co.

**Dyestuffs** (*otherwise undescribed*)
U. States, 3 pkgs. W. W. Young

**Farina—**
N. Russia, 27 pkgs. E. & T. Pink
Holland, 30 J. Knill & Co.
,, 200 R. G. Hall & Co.
Germany, 100 Prop. Scott's Wf.
Holland, 50 J. Knill & Co.

**French Chalk—**
Italy, £107 W. Harrison & Co.

**Gamboge—**
Singapore, 31 cs. L. & I. D. Jt. Co.

**Glucose—**
U. States, 250 pkgs. 250 c. Barrett, Tagant, & Co.
,, 25 150 c. Page, Son, & East
,, 100 605 R. G. Hall & Co.
Holland, 50 50 C. A. Farmer
France, 250 250 J. Barber & Co.
U. States, 2,003 2,000 Beresford & Co.
,, 200 1,135 F. J. Warren

**Glycerine—**
France, £1,440 Williams, Torrey, & Co., Ltd.
Holland, 150 Phillipps & Graves
Germany, 40 Ellis, Kislingbury, & Co
,, 298 H. Lambert

**Guano—**
Sweden, 41 t. Anglo-Swedish Co., Ltd.

**Iodine—**
Iquique, 19 pkgs. A. Gibbs & Sons

**Iron Bromide—**
Germany, 5 pkgs. A. & M. Zimmermann

**Manganese—**
France, 4 t. H. Johnson & Sons
Japan, 130 J. Swire & Sons
Germany, 2 C. Hof & Co.

**Methyl Alcohol—**
Holland, 1 dm. Stein Bros.

**Manure—**
France, 180 t. J. B. White & Bros., Ltd.
Germany, 20 T. H. Lee

**Mica—**
Ceylon, £44 W. M. Smith & Sons

**Ochre—**
France, 115 brls. W. Harrison & Co.
Holland, 16 Phillipps & Graves
France, 48 cks. Brougham Young
Spain, 80 Hemingway & Co.
Holland, 11 pkgs. Phillipps & Graves

**Painters' Colours—**
Germany, 18 pkgs. L. & I. D. Jt. Co.
France, 12 Flageollet & Co.
,, 20 J. Burnett & Sons
,, 5 Mory & Co.
Belgium, 6 Stutchbury & Sons
Singapore, 13 Somes & Co.
,, 40 L. & I. D. Jt. Co.
Belgium, 6 T. Palmer
Germany, 10 Craven & Co.
Holland, 2 Hernu, Peron & Co.
Cape Town, 19 E. Bach & Co.
Germany, 8 Phillipps & Graves
,, 4 H. Keller & Co.
China, 20 T. Barlow & Bros.
U. States, 20 cs. A. M. Munn
,, 1 Allan Bros. & Co.
France, 6 cks. B. & F. Wf. Co, Ld.
Germany, 4 W. J. Pattison & Co.
Belgium, 3 T. H. Lee

**Paraffin Wax—**
U. States, 165 brls. C. Ogleby & Co.
,, 1,070 J. H. Usmar & Co.
,, 200 Fowler, Waring Cable Co.

**Pitch—**
France, 93 brls. C. B. Leighton
Sweden, 100 J. C. Higgs
N. Russia, 400 pkgs. W. F. Malcolm & Co.
,, 400 cks. Linck, Moeller, & Co.

**Plumbago—**
Ceylon, 43 brls. Beresford & Co.
,, 5 Prop. Sun Wf.
,, 70 Doulton & Co.
,, 55 R. G. Hall & Co.
Germany, 114 cks. B. Gallaway
Ceylon, 102 J. Forsey
,, 333 J. Thredder, Son, & Co.
,, 173 Marshall & French

**Potash—**
France, 200 c. F. W. Berk & Co., Ltd.
Canada, 262 S. Ward & Co.
,, 117 Charles & Fox

**Potassium Bicarbonate—**
Holland, 9 cks. A. & M. Zimmermann

**Potassium Carbonate—**
France, 110 c. J. A. Reid

**Potassium Muriate—**
Germany, 3 pkgs. H. Lambert

**Potassium Sulphate—**
France, 28 pkgs. Weatherley, Mead, & Co.

**Rosin—**
U. States, 500 brls. G. Nutter & Co.
,, 500 Prod. Brokers Co.

**Saltpetre—**
Germany, 34 pkgs. 115 cks. P. Hecker & Co.

**Soapstone—**
Italy, £219 Gellatly, Hankey, & Co.
Hong Kong, 10 Eastwood & Holt

**Sodium Acetate—**
France, 9 pkgs. S. F. Waters & Co.

**Sodium Hyposulphite—**
Holland, 100 pkgs. Beresford & Co.

**Stearine—**
Belgium, 63 bgs. H. Hill & Sons
France, 287 G. Boor & Co.

**Sulphur—**
Italy, 8 t. G. Boor & Co.
,, 200 B. Jacob & Sons
,, 15 F. & L. Sitzler
,, 3 Stobbs, Wilson, & Co.
,, 4 Jessop & Co.
,, 300 W. C. Bacon & Co.
,, 72 Italo-Brit. S. N. Co.
,, 25 Co-op. L. Assn., Ltd.
,, 10 Magee, Taylor, & Co.

**Talc—**
Adelaide, £20 Harold Bros.

**Tallow—**
Queensland, 16 cks. Leach & Co.
,, 113 Low, Sons, & Bedford
,, 45 Coml. Banking Co. of Sydney
Sydney, 45 J. Greig
N. Zealand, 24 J. Graves
,, 835 Flack, Chandler, & Co.
Queensland, 58 Aust. Meat. Co.
,, 197 Goldsbrough, Mort, & Co.
,, 28 Hicks, Nash, & Co.
,, 207 Goad, Rigg, & Co.
Melbourne, 32 Baxter & Hoare
N. Zealand, 49 Culverwell, Brooks, & Co.
Queensland, 22 Horne & Co.
Germany, 50 H. Hill & Sons
Adelaide, 26 Hicks, Nash, & Co.
N. Zealand, 9 Hoare, Wilson, & Co.
Melbourne, 164 Elkan & Co.
,, 133 cks. A B. Curtis & Co.
,, 100 Dalgety & Co.
Queensland, 58 Culverwell, Brooks, & Co.
N. Zealand, 135 Brown & Elmslie
Sydney, 34 Leach & Co.
Belgium, 4 H. Hill & Sons

**Tar—**
N. Russia, 703 brls. W. F. Malcolm & Co.
,, 2,978 Linck, Moeller, & Co.
,, 1,000 Union Whvs. Co.

**Tartaric Acid—**
Holland, 35 pkgs. Middleton & Co.
,, 4 C. Christopherson & Co.
,, 4 J. Owen
,, 11 W. C. Bacon & Co.

**Tin Crystals—**
Germany, 2 pkgs. H. Lambert

**Turpentine—**
N. Russia, 50 brls. Mordaunt Bros.
,, 53 W. Caudery & Co.
Savannah, 2,568 Nickoll & Knight
,, 2,780 Prod. Brokers Co.

**Ultramarine—**
Germany, 20 cs. G. Steinhoff
Germany, 3 J. Kitchin, Ld.
Belgium, 3 cks. Leach & Co.
,, 3 W. Harrison & Co.
Germany, 3 pkgs. H. Lambert

**Varnish—**
U. States, 36 pkgs. Pinchin, Johnson, & Co.
,, 11 Williams, Torrey, & Co.
Germany, 8 H. Lambert
,, 2 cks. Stobbs, Wilson, & Co.

**White Lead—**
Germany, 9 cks. P. Jantzen
,, 13 Petri Bros.
Holland, 45 F. & W. Farmiloe
,, 19 Burrell & Co.
,, 19 A. & M. Zimmermann
Germany, 27 W. Croft
,, 20 Magee, Taylor, & Co.
,, 23 W. Fenton
,, 26 W. A. Rose & Co.
Holland, 90 Phillipps & Graves

**Zinc Oxide—**
Germany, 90 brls. M. Ashby, Ld.
Holland, 625 pkgs. Soundy & Sons

## LIVERPOOL.

*Week ending August 11th.*

**Acetic Acid—**
Rotterdam, 10 botls.

**Acids—**
Havre, 1 pkg.

**Alum—**
Havana, 1 sk.

**Barytes—**
Antwerp, 6 cks. 100 bgs.
Rotterdam, 22

**Boracite—**
Panderma, 508 t. Borax Co, Ld.
,, 50 R. S. Ivans

**Borate of Lime—**
Iquique, 330 bgs.
Antofagasta, 679
,, 1,360 J. Compton

**Caoutchouc—**
Havre, 20 cks. Cunard S. S. Co., Ld.

**Chemicals** (*otherwise undescribed*)
Rouen, 18 cks. Co-op. W'sale Society, Ld.
Rotterdam, 2

**Colours—**
Hamburg, 1 cs.
Rotterdam, 13
Antwerp, 4 brls. J. T. Fletcher & Co.
Ghent, 2 cs. 4 ,,

**Disinfectants—**
New York, 4 cs. A. J. Dixon

**Dried Blood—**
B. Ayres, 2,100 bgs.

**Dyestuffs—**
**Algorabilla**
Totorubillo, 269 sks. Vorwert & Co.
**Annatto**
Bordeaux, 7 cks.
**Cochineal**
Gr. Canary, 41 bgs. Kennedy & Moore
**Cutch**
Calcutta, 2 bxs.
Rangoon. 1,115
**Divi Divi**
Savanilla, 9 sks.
Amsterdam, 206 bgs. Browne, Gevek & Co.
**Extracts**
Marseilles, 10 cs.
Colon, 50 Benito, Novello & Co.
**Fustic**
Colon, 444 ps. A. Dobell & Co.
,, 202 H. J. Lovitt
,, 145 Hughes, Treleaven & Co.
Jamaica, 16 t. 2 c. Bernard Hall & Co.
Trieste, qty. Huhler & Co.
**Gambier**
Singapore, 2,235 brls.
**Indigo**
Bombay, 33 cs.
**Madder**
Marseilles, 2 cks. 2 cs.
**Myrabolams**
Bombay, 1,598 bgs.
Calcutta, 3,000 pkts.
**Sumac**
Barcelona, 50 bgs.
Palermo, 650
**Turmeric**
Calcutta, 8 bgs.
**Valonia**
Smyrna 2 bgs. Irvine & Sellars
,, 110 t.

—
am 15, 100 bgs. Browne, Geveke & Co.
Rotterdam, 20
Fiume, 170 sks. Van der Veen & Bros.
100

**Glucose**—
New York, 477 brls.

**Glycerine**—
Marseilles, 5 dms.
Rotterdam, 35 cs. 8 carbys. 7 tins

**Guano**—
Colon, 60 sks. Peruvian Corporation

**Lime**—
New York, 2,554 bgs.

**Manganese**—
Hamburg, 3 cks.
Carrizal, 823,476 kilos.
Coquimbo, 200,000

**Mica**—
New York, 2 brls. Robinson & Allen

**Mineral White**—
Trieste, 100 bgs. V. Pozze

**Ochre**—
Marseilles, 27 bgs.
" 142 cks. Wilson, Son & Co.
Rouen, 288 Co-op. W'sale Society, Ltd.

**Paint**—
New York, 10 cks. Leighborn, Aspinall & Co.
Philadelphia, 3 brls.

**Phosphate**—
Ostende, 650 t.
Ghent, Quantity in bags.

**Phosphate Rock**—
Pt Royal, 3,652 t. J. Adagar & Co.
Brunswick, Ga., 1,911 Phospho Guano Co., Ltd.

**Pitch**—
Boston, 1 brl. 1 bx.

**Potash**—
Hamburg, 29 cks.

**Potassium Carbonate**—
Rouen, 51 cks. Co-op. W'sale Society, Ltd.

**Pyrites**—
Huelva, 1,380 t. Matheson & Co.

**Rosin**—
New York, 2,000 brls.
Hamburg, 12 cs.

**Saltpetre**—
Calcutta, 1,616 bgs.
Hamburg, 135 kgs.

**Soap**—
Marseilles, 16 cs.
Boston, 2
Marseilles, 5 J. T. Hains
New York, 1
Bari, 350
Naples, 75 P. Behrends
New York, 240 brls. Simmonds, Hunt & Co.

**Soapstone**—
Philadelphia, 157 bgs.

**Sodium Acetate**—
Rouen, 16 cks. Co-op W'sale Society, Ltd.

**Sodium Chloride**—
Rotterdam, 17 cks.

**Stearine**—
Baltimore, 100 tcs.

**Talc**—
Bordeaux, 100 bgs G. G. Blackwell
" 100

**Tallow**—
Boston, 100 tcs. 50 hds.
B. Ayres, 150 pps. 386 580½ pps.
New York, 114
Rouen, 103 bgs. Co-op. W'sale Society, Ltd.
Philadelphia, 25
Punta Arenas, 2 brls. J. Hoare & Co.

**Tartar**—
Bordeaux, 16 cks.

**Tartaric Acid**—
Marseilles, 14 cks. J. T. Hains
" 5
Rotterdam, 18

**Turpentine**—
Havre, 1 pkg. Cunard S. S. Co., Ltd.

**Ultramarine**—
Hamburg, 10 cs.
*Rotterdam,* 15 9 cks.

**Varnish**—
Havre, 4 pkgs. Cunard S. S. Co. Ltd.

**Verdigris**—
Marseilles, 15 brls.
Bordeaux, 3 cks.

**Waste Potash Salts**—
Hamburg, 800 bgs.

**Waste Salt**—
In transit, 95 bgs.

**White Lead**—
Rotterdam, 15 cks. O & H Marcus
" 20
Ghent, 11

**Zinc Ashes**—
Marseilles, 35 brls.
Bordeaux, 9 cks.

**Zinc Oxide**—
St. Nazaire, 13 brls.
Rotterdam, 10 cks.
Antwerp, 60 brls. J. T. Fletcher & Co.
" 60

## HULL.

*Week ending August 13th.*

**Alkali**—
Bremen, 1 kg. 1 cs. Veltmann & Co.

**Alum**—
Rotterdam, 80 cks. W. & C. L. Ringrose

**Barytes**—
Rotterdam, 3 cks.
Antwerp, 63 Bailey & Leetham
" 100 bgs. H. F. Pudsey
Riga, 100 cks. Wilson, Sons, & Co., Ld.
Bremen, 62
" 24 Veltmann & Co.

**Copper Sulphate**—
Rotterdam, 2 cks. W. & C. L. Ringrose

**Caoutchouc**—
Hamburg, 12 cs. C. M. Lofthouse & Co.

**Chemicals** *(otherwise undescribed)*
Dunkirk, 20 cks. Wilson, Sons, & Co., Ld.
" 30 pks.
Hamburg, 8 "
Bari, 1 ck. "
Antwerp, 115 pks. "
Bremen, 1 cs. Veltmann & Co.
" 1 ck. Woolhouse & Co.
" 2 cs. Wilson, Sons, & Co., Ld.
Leghorn, 10 cks. "

**Colours**—
Rotterdam, 1 cs. 9 cks. 22 pks G. Lawson & Sons
" 15 pks. W. & C. L. Ringrose
Ghent, 12 cks. Wilson, Sons, & Co., Ld.
" 22
Rotterdam, 1 W. Harrison & Co.
Stettin, 70
Antwerp, 4 Bailey & Leetham
Flushing, 21 4 cs. 135 pks. Zeeland S. S. Co.
Hamburg, 1 C. M. Lofthouse & Co.
Antwerp, 9 1 brl. Wilson, Sons, & Co., Ld.
Bremen, 1 cs. Veltmann & Co.
" 1 ck. Johnson Brs.
" 2 cks. J. & T. Seddon

**Cryolite**—
Copenhagen, 1 ck. Wilson, Sons, & Co., Ld.

**Dyestuffs**—
**Alizarine**
Rotterdam, 50 brls. G. Lawson & Sons
**Madder**
Rotterdam, 1 ck. W. & C. L. Ringrose
" 1 J. Pyefinch & Co.
Marseilles, 1
**Myrabolams**
Bombay, 400 bgs.
**Sumac**
Palermo, 220 bgs. Wilson, Sons, & Co., Ld.
" 1,910
**Valonia**
Smyrna, 101 t. 1,096 bgs.

**Farina**—
Ghent, 382 bxs. Wilson, Sons, & Co., Ld.
Stettin, 10 bgs. "
Hamburg, 1 kg. C. M. Lofthouse & Co.
" 20 bgs. Wilson, Sons, & Co., Ld.

**Glucose**—
New York, 348 brls.

**Manure**—
Amsterdam, 67 bgs. Hirschfield Brs.

**Ochre**—
Rouen, 69 cks. T. F. Hewitt & Co.
" 7
Marseilles, 288 cks. Wilson, Sons, & Co., Ld.
" 25 12 pkgs.

**Pitch**—
Hamburg, 33 cks. W. Jackson & Son
Archangel, 350 brls. Storry, Smithson & Co.
Uleaborg, 10 J. Good & Sons

**Potash**—
Rotterdam, 10 cks. G. Lawson & Sons

**Soap**—
Bari, 100 cs. Wilson, Sons, & Co., Ld.
" 33
Marseilles, 4

**Stearine**—
Antwerp, 13 bgs. Bailey & Leetham

**Sulphur**—
Catania, 837 pks. Wilson, Sons, & Co., Ld.
" 300

**Tar**—
Archangel, 2,135 brls. Storry, Smithson, & Co.
Marseilles, 20 cks. Wilson, Sons, & Co, Ld.
Uleaborg, 1,300 J. M. Hamilton & Co

**Tartaric Acid**—
Rotterdam, 5 cks. Hutchinson & Son

**Turpentine**—
Trieste, 2 cs. Wilson, Sons, & Co., Ld.

**Ultramarine**—
Rotterdam, 4 cks. Todd & Son

**Verdigris**—
Marseilles, 2 pkgs. Wilson, Sons, & Co., Ld.

**White Lead**—
Rotterdam, 20 cks. G. Lawson & Sons
" 45 Sissons Bros. & Co.
" 29 A. Sanderson & Co.
Antwerp, 35 Bailey & Leetham
Rotterdam, 18 W. & C. L. Ringrose

**Zinc Oxide**—
Rotterdam, 10 cks. G. Lawson & Son
" 20 W. & C. L. Ringrose

## GLASGOW.

*Week ending August 18th.*

**Alum**—
Rotterdam, 36 cks. G. & J. Boyd

**Barytes**—
Rotterdam, 44 cks.

**Barytes Sulphate**—
Antwerp, 21 cks.

**Bleaching Powder**—
New York, 100 bxs.

**Chemicals** *(otherwise undescribed)*
Hamburg, 5 css.

**Chromium Acetate**—
Rotterdam, 1 ck. J. Rankine & Son

**Colours**—
Rotterdam, 8 cks. 1 bx. J. Rankine & Son

**Cream of Tartar**—
Marseilles, 21 brls.

**Dyestuffs**—
**Alizarine**
Rotterdam, 7 cks.
" 8 J. Rankine & Son
**Aniline Colours**
Rotterdam, 2 css. J. Rankine & Son
**Indigo**
Rotterdam, 17 chts. J. Rankine & Son

**Glucose**—
New York, 299 bls.

**Ochre**—
Marseilles, 28 brls.
Rouen, 3 pkgs. 45 cks.

**Paint**—
New York, 1 brl.

**Potash**—
Montreal, 10 brls. J. Rankine

**Potassium Carbonate**—
Hamburg, 65 cs.

**Potassium Prussiate**—
Hamburg, 40 cks.

**Rosin**—
New York, 600 W. N. Gemmell & Co.
" 1,675

**Soap**—
Bombay, 1 cs.

**Soda**—
Rotterdam, 15 cks. J. Rankine & Son

**Tallow**—
New York, 30 hds. 50 trcs.

**Tar**—
Archangel, 3,709 brls Young, Falconer. & Co

**Tartaric Acid**—
Marseilles, 32 brls.

**Waste Salt**—
Hamburg, 270 t.

**White Lead**—
Rotterdam, 72 cks.

**Zinc Sulphate**—
Rotterdam, 5 cks. J. Rankine & Son

**Zinc White**—
Rotterdam, 50 cks. J. Rankine & Son

## TYNE.

*Week ending August 13th.*

**Alum Earth**—
Hamburg, 18 cks. Tyne S. S. Co.

**Barytes**—
Rotterdam, 63 cks. Tyne S. S. Co.

**Colours**—
Antwerp, 2 cks. Tyne S. S. Co.

**Manganese**—
Hamburg, 1 ck. Tyne S. S. Co.

**Phosphate**—
Antwerp, 200 t.

**Pitch**—
Archangel, 300 brls.

**Rosin**—
Savannah, 2,063 brls.

**Soap**—
Rotterdam, 2 cs. Tyne S. S. Co.
Copenhagen, 1

**Sodium Sulphate**—
Antwerp, 1 ck. Tyne S. S. Co.

**Tar**—
Archangel, 2,726 brls.

**Tartaric Acid**—
Rotterdam, 4 cs. Tyne S. S. Co.

**Ultramarine**—
Hamburg, 5 cs. Tyne S. S. Co

## GOOLE.

*Week ending August 3rd.*

**Dyestuffs**—
**Alizarine**
Rotterdam, 27 pkgs. 43 brls.
**Extracts**
Rotterdam, 4 brls.
**Tanning Extract**
Ghent, 50 cks.

**Dyestuffs** *(otherwise undescribed)*
Boulogne, 85 cks. 43 cs. 3 pkgs.

**Farina**—
Hamburg, 150 bgs.

**Potash**—
Calais, 12 dms. 2 cks.

**Saltpetre**—
Rotterdam, 100 bgs.

## GRIMSBY.

*Week ending August 6th.*

**Caoutchouc**—
Hamburg, 22 pkgs.

**Chemicals** *(otherwise undescribed)*
Hamburg, 8 pkgs.
Rotterdam, 6 cs.

**Size**—
Antwerp, 4 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending August 17th.*

**Acids—**
Rio de Janeiro, 10 cs. £11
Cape Town, 45 56

**Alum—**
Rabat, 1 t. 7 c. £8

**Alum Cake—**
Bordeaux, 5 t. 13 c. £28

**Ammonia—**
Fremantle, 10 cs. £45
Lisbon, 4 25

**Ammonium Carbonate—**
B. Ayres, 2 t. 4 c. £63
Lisbon, 6 9
Wellington, 5 cs. 11

**Ammonium Chloride—**
Bremen, 4 c. £6
Bagdad, 25 brls. 80
Paris, 1 t. 18 c. 65

**Ammonium Nitrate—**
Algoa Bay, 18 cs. £158

**Ammonium Sulphate—**
Hamburg, 80 t. 9 c. £775
Dunkirk, 10 9

**Arsenic—**
Wellington, 1 t. £13
Napier, 12 10 c. 165

**Baryta Nitrate—**
New York, 5 t. 3 c. £101

**Bisulphide of Carbon—**
B. Ayres, 1 t. £15
Sydney, 100 drs. 50
Melbourne, 75 38

**Bisulphite of Lime—**
Calcutta, 5 t. 2 c. £35

**Borax—**
Harlingen, 5 cs. 7 c. £36
Hamburg, 8 cks. 65

**Calcium Chloride—**
Fremantle, 10 drs. £10

**Carbolic Acid—**
Baltimore, 8 cs. £35
Dusseldorf, 40 drs. 180
Hamburg, 22 t. 16 c. 11 cks. 125
St. Petersburg, 55 brls. 104 377
Rotterdam, 4 t. 14 c. 48 222
Boston, 1 cs. 10
Karachi, 21 pkgs. 13
Napier, 100 drums. 87

**Caustic Potash—**
Napier, 3 t. £67

**Caustic Soda—**
Philadelphia, 45 t. £501
Rio de Janeiro, 20 t. 9 c. 242
Pernambuco, 28 15 300
Algoa Bay, 1 18 62
Natal, 10 7

**Chemicals** *(otherwise undescribed)*
Melbourne, 2 cks. 10 cs. £33
Alexandria, 10 kgs. 16
Nelson, 6 c. 10
Auckland, 5 58
Adelaide, 6 pkgs. 95 dms. 80
Natal, 20 12

**Citric Acid—**
St. Petersburg, 10 c. £80
Wellington, 4 32
Rotterdam, 5 40
B. Ayres, 6 45
Genoa, 10 77
Bremen, 3 23
Adelaide, 7 65
Cape Town, 2 15
Newcastle, 1 8
Liban, 1 9
Riga, 5 46
Gustyeffsky, 4 t. 624
Marseilles, 2 12
Melbourne, 1 150
Cologne, 6 40

**Coal Products—**
**Alizarine**
Boston, 6 kgs. £25
New York, 25 cks. 388

**Aniline**
Adelaide, 7 cs. £43
**Aniline Oil**
Rotterdam, 12 drs. £400
**Anthracene**
Dusseldorf, 397 cks. £2,392
Cologne, 207 1,125
**Benzol**
Terneuzen, 16 drs. £156
Calais, 17 350
Buffalo, 40 473
Rotterdam, 40 cks. 333
Melbourne, 25 7
**Creosote**
Dieppe, 15,975 glns. £84
Philadelphia, 8 cs. 80
**Naphtha**
Calais, 27 runs. £91
Melbourne, 30 drs. 62
**Pitch**
Salonica, 50 brls. £22
Constantinople, 150 60
Granville, 48 t. 70
Antwerp, 168 278
New York, 2,000 cks. 100 bgs. 942
**Pyridine Bases**
Stettin, 12 cks. £120
**Tar**
E. London, 250 dms. £11
Malmo, 100 brls. 48
Sydney, 2 cks. 20
**Tar Oil**
Malmo, 50 brls. £25
Odessa, 200 cks. 202
**Toluol**
Calais, 50 runs. £170
Rotterdam, 20 cks. 179

**Copperas—**
Rabat, 2 t. 13 c. £10

**Copper Sulphate—**
Bremen, 1 t. £15
Otago, 10 c. 8
Bordeaux, 5 t. 80

**Corrosive Sublimate—**
Tangiers, 1 c. £15
Salonica, 8 cs. 46

**Cream of Tartar—**
Nelson, 5 c. £21
Adelaide, 10 44
Auckland, 10 46
Sydney, 1 t. 10 128
Melbourne, 2 10 215

**Disinfectants—**
Pt. Said, 1 cs. £6
Constantinople, 55 pkgs. 104
Hamburg, 50 cks. 250
Sydney, 11 39
Algoa Bay, 3 26

**Flowers of Sulphur—**
Punta Arenas, 7 t. £71
Auckland, 1 8
Algoa Bay, 4 10 c. 41
E. London, 1 16 22

**Glycerine—**
Wellington, 1 cs. £10
Boston, 3 13

**Manure—**
Madeira, 28 t. 14 c. £254
Las Palmas, 20 90
Teneriffe, 1 8
Riga, 592 16 1,631
Danzig, 34 160
Cadiz, 50 243
Sables d'Olonne, 125 8 898
Natal, 5 42

**Muriatic Acid—**
Natal, 5 cs. £10

**Oxalic Acid—**
Dunkirk, 5 t. 4 c £140
St. Petersburg, 10 281
Antwerp, 1 18 48
Harlingen, 9 18

**Phosphide of Calcium—**
Amsterdam, 2 cs. £25

**Phosphorus—**
Oporto, 3 cs. £43
Trinidad, 1 11

**Potassium Cyanide—**
Natal, 2 c. £18

**Saltpetre—**
Nelson, 7 c. £8
Adelaide, 2 t. 43
Bahia, 10 9 234
Seville, 1 2 23
Pernambuco, 11 17 266
Amsterdam, 6 10
Rio de Janeiro, 7 16 178
Santa Catherina, 1 22
Oporto, 1 18 38
Wellington, 10 11
Natal, 10 11

**Sheep Dip—**
E. London, 500 drs. £102
Algoa Bay, 3 t. 9 c. 100
Dunedin, 520 cs. 1,560
Gisborne, 50 150
New Plymouth, 20 60
Wellington, 360 1,080
King Geo Isl'nd, 1 t. 11 c. 75
Sydney, 10 107 pkgs. 400
Christchurch, 120 drs. 125
Invercargill, 400 500
Pt. Elizabeth, 1 4 30
Natal, 50 pkgs. 53

**Soda—**
Campana, 10 c. £8
Calcutta, 16 6

**Soda Crystals—**
Gibraltar, 1 t. 13 c. £6
Napier, 5 19
Natal, 1 13 6

**Sodium—**
New York, 3 t. 2 c. £500

**Sodium Acetate—**
Melbourne, 5 t. £82

**Sodium Bicarbonate—**
Wellington, 2 t. 10 c. £18
Hong Kong, 10 5
Libau, 1 7 13
Adelaide, 6 39

**Sodium Carbonate—**
Natal, 6 c. £12

**Sodium Hyposulphite—**
Rotterdam, 6 cs. £70

**Sodium Sulphate—**
Ghent, 60 t. £90

**Strontium Nitrate—**
New York, 9 t. 2 c. £259
Algoa Bay, 7 15

**Sulphur—**
Pernambuco, 70 kgs. £35
Mossel Bay, 1 t. 2 c. 15

**Sulphur Dioxide—**
Melbourne, 10 cs. £70

**Sulphuric Acid—**
Amsterdam, 5 c. £20
Singapore, 20 cs. 16
Natal, 7 t. 10 c. 200

**Superphosphate—**
Mauritius, 101 t. 19 c. £326

**Tartaric Acid—**
Bremen, 3 c. £16
Nelson, 5 26
Auckland, 5 26
Wellington, 4 21
Montreal, 1 t. 1 68
Riga, 2 16
Hamburg, 4 pkgs. 42
Algoa Bay, 5 27
Newcastle, 1 6
Sydney, 10 kgs. 53
Melbourne, 10 51
Adelaide, 20 117

## LIVERPOOL.

*Week ending August 17th.*

**Alum—**
Ancona, 4 t. 7 c. 2 q. 29
Malta, 3 16 22
Bourges, 4 24
Ibrail, 2 12
Galatz, 4 24
Melbourne, 6 13 34
San Francisco, 20 120
Montreal, 14 1 70
Larnaca, 1 9 7
Malaga, 6 9 37
Beyrout, 7 17 39
Malta, 1 2 6
Leghorn, 10 8 32
Adelaide, 1 1 6
Alexandria, 10 15 66
Callao, 1 8 2 9

**Alum Cake—**
Calcutta, 3 t. 1 c. 1 q. £9
Colombo, 10 4 1 30

**Aluminous Cake—**
Calcutta, 12 t. 11 c. 2 q. £46

**Ammonium Carbonate—**
Vigo, 17 c. 2 q. £29
Genoa, 13 21
Bari, 1 1
Copenhagen, 3 t. 5 4 109
Venice, 8 13
Stettin, 10 4 18
Barcelona, 1 31
Ceara, 4 8

**Ammonium Chloride—**
B. Ayres, 2 t. 8 c. 2 q. £54
Melbourne, 1 1 2 23
Calcutta, 3 99
Bombay, 10 12 349
Philadelphia, 17 6 4 396
Toronto, 5 3 10
Montreal, 2 1 1 62
Rustchuk, 10 17
Genoa, 2 66
Patras, 6 10
Trieste, 1 34
Alexandretta, 10 17
New York, 15 3 505

**Ammonium Sulphate—**
Montreal, 7 c. 1 q. £4
Demerara, 31 t. 14 3 329
Malaga, 51 6 1 512
Valencia, 10 6 1 100
Barcelona, 50 4 500
Rouen, 14 8 158
Las Palmas, 30 3 331
Gr. Canary, 6 61
Calcutta, 3 3 17
Genoa, 69 17 2 735
Bordeaux, 5 50

**Aniline Salt—**
Barcelona, 1¼ t.

**Arsenic—**
Sydney, 1 c. £1

**Barium Nitrate—**
Lisbon, 2 t. 1 c. £43

**Bisulphide of Carbon—**
Manaos, 4 c. 2 q. £6

**Bleaching Powder—**
Baltimore, 140 cks.
Bombay, 93 cs. 105
Boston, 1,042
Corunna, 8 brls.
Genoa, 67
Lisbon, 4
New Orleans, 60
" York, 412 15 bxs.
Odessa, 225
Oporto, 116 17
Patras, 7
Philadelphia, 88
Valparaiso, 100
Amsterdam, 6
Bari, 6
Corfu, 10
Melbourne, 105
St. Petersburg, 21

**Borax—**
Ghent, 1 t. 19 c. £59
Sydney, 2 1 2 q. 64
Rotterdam, 3 3 96
Santiago de Cuba, 5 7
Stockholm, 11 15
St. John's, Nfld., 5 7
San Louis, 3 6
Hamburg, 6 cks. 92
Stettin, 3 24
Carril, 5 2 8
Callao, 17 2 27

**Calcium Chloride—**
B. Ayres, 12 t. 13 c. £29

**Carbolic Acid—**
Rotterdam, 2 c. 2 q. £7
Rouen, 5 t. 5 67
Genoa, 16 1 40
Hamburg, 5 12 1 67
Vera Cruz, 3 5
Barcelona, 10 30
New York, 3 18 200

**Caustic Potash—**
B. Ayres, 1 t. 3 c. £40

**Caustic Soda—**
Adelaide, 18 dms.
Alexandria, 136
Amsterdam, 64 brls.
Baltimore, 50
Barbadoes, 8
Barcelona, 366 41
Bilbao, 20
Bombay, 86
Boston, 435 82 cks.
B. Ayres, 100
Callao, 86 20 kgs.
Calcutta, 114
Catania, 15
Chicago, 25 30 bxs.
Fiume, 70
Galatz, 91
Genoa, 403
Halifax, 10
Hamburg, 127
Havana, 80
Ibrail, 18
Iquique, 20
Leghorn, 105
Lisbon, 65
Malta, 50
Melbourne, 62
Monte Video, 50
Montreal, 355
Naples, 324
Odessa, 228
Oporto, 158
Pernambuco, 230
Philadelphia, 50
Pt. Elizabeth, 39
Porto Alegre, 10 kgs.
Rotterdam, 300 5 brls.
Rouen, 169
St. Petersburg, 30
Salonica, 7
San Sebastian, 80
Seville, 164 75 50 pkgs.
Stettin, 145 50
Talcahuano, 15
Wellington, 51
Ancona, 25
Bahia, 30 kgs. 50
Bari, 56
Cardenas, 12
Corinto, 20
Corunna, 20 brls.
Eten, 20
Hiogo, 100
Jaffa, 60
Madeira, 6
Malaga, 34
Milwaukee, 150
Messina, 51
New Orleans, 27
,, York, 1,322
Piræus, 30
San Francisco, 540 50 bxs. 20
Santander, 10
Sourabaya, 9

**Chemicals** *(otherwise undescribed)*
Genoa, 8 c. £14
Alexandria, 1 t. 31
Newfairwater, 3 5
Larnaca, 14 22
Lisbon, 13 23
Calcutta, 3 102
Nantes, 1 2 35
Mexico City, 6 1 17
Rotterdam, 3 12 6 134
Havre, 1 2 1 44
Leghorn, 15 23
Genoa, 1 5 38

**Citric Acid—**
Lisbon, 5 c. 2 q. 49
Monterey, 2 1 15

**Cobalt Oxide—**
Valencia, 1 t. 16 c. £98

**Colours—**
Montreal, 1 ck.
Callao, 32 cs.
Lisbon, 1

**Copperas—**
Beyrout, 4 t. 4 c. 3 q. £8
Volo, 2 1 3 4
Larnaca, 3 3
Piræus, 2 4 5
Odessa, 4 16 8
Balua, 3 6s.
Galatz, 2 1 4

**Copper Sulphate—**
Sydney, 4 c. 3 q. £4
Varna, 1 t. 5 18
Galatz, 1 17 2 27
Rouen, 10 150
Bombay, 10 9
Gr. Canary, 2 12 38
Barcelona, 15 13 4 231
Pachuca, 20 315
Naples, 10 19 5 157
Bari, 5 1 74
Danzig, 5 1 1 70
Marseilles, 35 5 523
Messina, 17 3 13
Ancona, 4 2 2 61
Odessa, 14 1 204

**Disinfectants—**
Bombay, 13 c. £25
Rio de Janeiro, 1 t. 16 16

**Dried Blood—**
Gr. Canary, 1 t. 1 c. 2 q. £7

**Guano Phosphate—**
Hamburg, 24 t. 4 c. 1 q. £138

**Gypsum—**
New York, 72 t. 17 c. £268

**Iron Oxide—**
Galatz, 1 t. 14 c. £14
Baltimore, 61 cks. 270

**Iron Sulphate—**
Sydney, 2 c. 2 q. 10s.

**Lead Acetate—**
Sydney, 10 c. 1 q. £14

**Lime—**
Salaverry, 4 t. 10 c. £5

**Manganese—**
Fiume, 16 cks.
Valparaiso, 2

**Magnesia—**
Corunna, 1 cs. 1 ck.
Havre, 16
New York, 60
Boston, 9

**Magnesium Chloride—**
Nantes, 4 t. 18 c. £13
Genoa, 1 6 4

**Manure—**
Gr. Canary, 10 t. £40
Genoa, 100 17 c. 744
Marseilles, 165 7 2 q. 919
Bordeaux, 130 3 3 816
Havre, 50 5 2 278
St. Nazaire, 1,000 2 4,663

**Muriatic Acid—**
Maranham, 6 cs. £6

**Nitric Acid—**
Maranham, 6 cs. £12

**Oxalic Acid—**
Barcelona, 2 t. 4 c. 2 q. £54
Bombay, 1 28
Lisbon, 1 3 29

**Paint—**
Addah, 9 cs.
Alexandria, 18 dms.
Benguella, 2 14 126 kgs.
Bremerhaven, 12 brls.
Constantinople, 625
E. London, 2 tcs. 50
Fernando Po, 20
Hamburg, 1 ck. 33
Iquique, 35 cs. 15
Mollendo, 5 cks.
Montreal, 52
Old Calabar, 40
Vera Cruz, 1 cs.
Antofagasta, 2
Callao, 1 20 57 3
Carthagena, 50
Demerara, 6 pkgs. 181 27
Galatz, 50
Gothenburg, 50 bgs.
Lisbon, 6 dms.
Manila, 16
Monte Video, 12
Payta, 4 cs. 13
Ponce, 11 brls. 5
Principi, 2 cs.
Rangoon, 2 brls.
Rotterdam, 31
Smyrna, 50
Sulina, 15

**Painters' Colours—**
Baltimore, 253 cks.
B. Ayres, 12 kgs. 126 brls.
Callao, 2 cs. 64 12 dms.
Hong Kong, 210
Honolulu, 23
N. York, 3 cs. 350 10 100 brls.
Oporto, 1 10
Para, 5 1
Piræus, 30 dms. 15
Santiago de Chili, 88 4 cs.
Valparaiso, 152 cs. 23 150 28 brls. 7 dms.
Zante, 2
Acajutla, 9
Antwerp, 19
Bathurst, 3
Benguella, 1
Bilbao, 30
Bombay, 8
Calcutta, 4
Capetown, 2 3 brls.
Ceara, 2 10 6
Constantinople, 40 dms.
Galatz, 10
Gibraltar, 10 2 brls.
Hamburg, 100 bgs.
Iquique, 1 cs. 80 dms.
Malta, 4
Manaos, 6
Marseilles, 46 50 bgs.
Talcahuano, 36 62 3 dms. 56 cs. 306 brls.
Valencia, 7
Varna, 2

**Pitch—**
Bilbao, 45 brls.
Mollendo, 6
Talcahuano, 6 t. 3 c.
Vigo, 18

**Potassium Bicarbonate—**
New York, 10 c. 2 q. £17

**Potassium Bichromate—**
Rio de Janeiro, 3 c. 3 q. £9

**Potassium Bromide—**
Sydney, 5 c. 2 q. £14

**Potassium Carbonate—**
Sydney, 2 c. 2 q. £3

**Potassium Chlorate—**
Rotterdam, 2 t. £110
Naples, 10 c. £29
Havana, 2 114
Messina, 6 15
Vigo, 14 72
Stettin, 1 18 95
Genoa, 14 32
Syra, 1 50
Gothenburg, 17 854
New York, 12 70 690
Montreal, 7 15 392
Oporto, 5 12
Ghent, 2 98
Yokohama, 12 10 570
Hiogo, 17 10 933
Melbourne, 1 56
Vera Cruz, 1 4
Mexico City, 6 25
Bari, 1 48
Shanghai, 1 10 70
Hamburg, 3 2 153
Carril, 16 45

**Potassium Chromate—**
Sydney, 2 c. £9

**Potassium Prussiate—**
Sydney, 2 c. 2 q. £12

**Rosin—**
Hamburg, 51 brls.
Trieste, 10

**Salt—**
Ambriz, 9 t.
Ambrizette, 14
Barbadoes, 41
Boston, 700
Brisbane, 75
Calcutta, 451
C. C. Castle, 41 508 sks.
Demerara, 785 brls.
Frederica, 726
Hamburg, 74
Honolulu, 20 cs.
Montreal, 279¾
Mussera, 5
Newcastle, N.S.W., 300 t.
New York, 130 t.
Opobo, 50
Para, 71 9 c.
Pt. Natal, 399½
Quebec, 587
Rosario, 5 7
Rotterdam, 159
St. John's, Nfld., 5
Salt Pond, 560
Savannah, 250
Talcahuano, 2
Antwerp, 260
Iceland, 212
Kingston, 624¾ 6,805 sks.
Loango, 500 bgs.
Melbourne, 50
Picton, 400
Rio de Janeiro, 8 c.
Rouen, 15
Tabong, 559

**Salt Cake—**
Baltimore, 316 t. 14 c. £754
Bari, 201 6 447

**Saltpetre—**
Rio de Janeiro, 1 t. 8 c. 2 q. £31
Callao, 1 6 1 28
Maceio, 1 6 3 30

**Sheep Dip—**
Rangoon, 1 t. £23
Rosario, 1 5 c. £40
B. Ayres, 25
Baltimore, 10 cks.

**Soap—**
Accra, 275 bxs.
Antigua, 600
Arendal, 25
Bakana, 200
Barbadoes, 850
Bathurst, 25
Bermuda, 90
Bonny, 200
Callao, 4 cs. 8
Calcutta, 1,512 1 dm.
Capetown, 1,851
Constantinople, 10 cs.
Gibraltar, 585
Hong Kong, 400
Las Palmas, 500
Manaos, 800
New Orleans, 150
,, York, 50 48 30 tcs.
Old Calabar, 200
Opobo, 1,500
Palmas, 324
Para, 200
Piræus, 1 25 bd
Pt. Natal, 430
Reunion, 400
Shanghai, 1,000
Teneriffe, 704
Trieste, 1
Valparaiso, 21
Winnebah, 26
Antwerp, 400
Belize, 350
Bluefields, 300
Cairo, 20
Curacao, 330
Demerara, 1,670
E. London, 1,621
Genoa, 30
Gr. Canary, 500
Guadeloupe, 1,000
Havre, 240
Iquique, 10
Kingston, 2,610
Lagos, 116
Rangoon, 3
St. John's, Nfld., 802 35
Trinidad, 284

**Soda—**
Trinidad, 1,200 bxs.
Beyrout, 25 dms.
Chefoo, 30 brls.

**Soda Ash—**
Adelaide, 34 cks.
Baltimore, 287 169 dms.
Boston, 451 800 bgs.
B. Ayres, 210 850 brls.
Half Jack, 3
Iquique, 10
Lisbon, 10
Melbourne, 190
Montreal, 127
Naples, 6
New York, 773 32
Oporto, 20
Rio de Janeiro, 20 150
Sydney, 167
Talcahuano, 50
Ancona, 9
Bombay, 30
Dunedin, 12
Everett, 124
Genoa, 10
Napier, 25
Pernambuco, 15
Philadelphia, 1,183
Piræus, 46
Samarang, 18
Smyrna, 200
Vigo, 20

**Soda Alkali—**
Callao, 20 brls.
Odessa, 100
Toronto, 45
Adelaide, 70
Catania, 20 cks.
Genoa, 72
Leghorn, 60
Montreal, 50

**Soda Crystals—**
Calcutta, 17 brls.
Honolulu, 30
Valparaiso, 10
Bari, 7
Bombay, 250 kgs.
Constantinople, 50
Gibraltar, 12
Kurrachee, 50
Malaga, 20
New York, 880 374
Oporto,
Philadelphia, 167 374
Quebec, 30
Sourabaya, 34

**n Arseniate—**
ork, 4 cks.
**n Bicarbonate—**
a, 6 cks.
, 84 brls.
ntinople, 25 kgs.
, 135
n, Ont, 50
eal, 400
y, 160
de, 100 bgs.
80 5
, 90 brls.
y, 350
es, 110 76
gena, 30
hagen, 320
in, 90
urg, 158 8 12
a, 160 3
a, 25
urne, 140 76
Video, 30
r, 40
, 130
no, 40
dam, 45
ca, 80
a, 20
, 20
**n Bichromate—**
s, 4 cks.
**n Carbonate—**
erp, 200 c.
York, 224 brls. 35 dms.
, 168
a, 1 cs.
**m Chlorate—**
urg, 20 kgs.
York, 130
rdam, 20
etersburg, 40
**m Chromate—**
y, 1 brl.
**m Silicate—**
lona, 160 brls.
e, 25 cks.
ourne, 12
**ur—**
erp, 5 t. 2 c. £30
n, 150 778
dad, 1 1 6
, 3 1 2 18
mbuco, 1 2 3 9
sund, 302 1,600
**phosphate—**
anary, 5 t. £25
**phosphate of Lime—**
, 220 t. 2 q. £495
anary, 40 91
**—**
urg, 1 ck.
ay, 19 cks.
3 brls.
s, 9 brls.
x, 50
**ric Acid—**
n, 4 c. £22
ina, 2 13
**entine—**
ide, 100 dms.
lla, 50
**ish—**
es, 1 ck.
orn, 4 cs.
**Chloride—**
le Janeiro, 2 c. £3

## HULL.

*eek ending August 13th.*

**—**
en, 6 bals.
, 25 dms.
**hing Powder—**
en, 4 cks.
40
n, 60
**ic Soda—**
225 dms.
n, 17
**icals** (*otherwise undescribed*)
erdam, 1 cs. 12 btls.
erp, 1 49 pks.
en, 10 cks.
tiania, 33 5 pkgs.
tiansand, 50
nhagen, 2 20 kgs. 40
enburg, 5 cs. 2 15
Hamburg, 16 5 3
Harlingen, 34
Libau, 8 24 146
Rotterdam, 42
Riga, 38 50
Stettin, 20 13 pkgs.
St. Petersburg, 240 100 kgs. 130
20 cs.
**Chloroform—**
Stockholm, 2 cs.
**Cottonseed Oil—**
Amsterdam, 102 c.
Antwerp, 300
Bremen, 17
Flushing, 134
Gothenburg, 98
Hamburg, 204
Rotterdam, 1,183
Stockholm, 100
Trieste, 1,458
**Creosote—**
Copenhagen, 5 cks.
Hamburg, 80
**Dyestuffs** (*otherwise undescribed.*)
Rouen, 10 cks.
Stettin, 5
St. Petersburg, 1 cs. 12 bls.
**Guano—**
Dunkirk, 200 bgs.
**Linseed Oil—**
Antwerp, 3 c.
Alexandria, 34
Bremen, 3
Christiania, 795
Christiansand, 51
Copenhagen, 34
Drontheim, 121
Gothenburg, 7
Hamburg, 291
Messina, 10
Rotterdam, 17
Trieste, 140
**Manure—**
Copenhagen, 300 bgs.
Hamburg, 30 t.
Pensacola, 375
**Ochre—**
Christiania, 10 cks.
**Painters' Colours—**
Antwerp, 10 cs. 60 cks. 25 dms.
128 pkgs.
Alexandria, 1 890 pks.
Christiania, 23 129
Copenhagen, 3 13 10 dms.
Drontheim, 156 kgs.
Hamburg, 16
Konigsberg, 10
Libau, 1
New York, 200 55
Rouen, 14
Rotterdam, 9 1
Riga, 2 6 2 dms.
Stettin, 59
St. Petersburg, 1 cs.
**Paraffin Wax—**
Trieste, 30 cs.
**Pitch—**
Antwerp, 2 cks.
**Soap—**
Hamburg, 20 cs.
**Superphosphate—**
Norre Sundby, 188 t.
**Tallow—**
Alexandria, 6 cks
Harlingen, 9
Rotterdam, 36
**Tar—**
Christiania, 6 cks.
Hamburg, 2
**Turpentine—**
Alexandria, 1 ck.
**Yarnish—**
Antwerp, 6 cks.
Hamburg, 2
Rotterdam, 1

## GLASGOW.

*Week ending August 18th.*

**Acid—**
Bombay, 238 t. 12 c. £2,290
**Ammonium Bichromate—**
Rouen, 10¾ c. £20
**Ammonium Sulphate—**
Rouen, 20 t. 7½ c. £191
Charente, 453 . 12 4,542
**Bichrome—**
Rouen. 5 t. ¾ c. £163
Rotterdam, 2 cks. 28
Antwerp, 10 8½ 348
**Bleaching Powder—**
Sydney, 6 t. 4¾ c. £41
**Borax—**
Montreal, 6 t. 13¾ c. £207
**Creosote Oil—**
Christiania, 20 brls. £8
**Dyestuffs—**
**Cutch**
St John's. N.F., 13 c. £19
**Extracts**
Montreal, 12 t. ½ c. £352
**Farina—**
Oporto, 2 t. 9 c. £46
Antwerp, 4 17 65
**Iodine—**
Rotterdam, 1 ck. £330
**Kainit—**
Sydney, 4 t. £20
**Linseed Oil—**
Mauritius. 2 t. 1½ c. £50
St. John's, N.F., 3 59
Singapore, 3 14 83
**Litharge—**
Montreal, 8 t. 18½ c. £128
**Manure—**
Mauritius, 120 t. £1,080
**Naphtha—**
Rouen, 28 t. 5¾ c. £402
**Paint—**
Rangoon, £71
Rouen, 13½ c. 30
Bombay, 2 t. 11¾ 29
New York, 3 2 £45. 10s.
Calcutta, 6 2¾ 93
**Painters' Colours—**
Mauritius, 22 t. 2¼ c. £322
Sydney, 248
" 1 7½ £47. 10s.
St. John's, N.F., 2 brls. 1 ck. 5 pns. £60
Singapore, 1 t. 18½ c. 22
Hong Kong, 8 16½ 171
Calcutta, 7 15¾ 114
**Paraffin Wax—**
Hong Kong, 2 t. 4¼ c. £56
Japan, 19 13½ 475
Venice, 3 15 113
Trieste, 7 12 190
Bilbao, 2½
**Pitch—**
Boston, 61 t. 17 c. £130
**Plumbago—**
Rangoon, 11 t. 10 c. £44
**Potassium Bichromate—**
Sydney, 1 t. 1 c. £43
Rouen, 10 ¾ 398
Quebec, 2 2¼ 85
**Potassium Prussiate—**
Rouen, 5 t. 6¾ c. £298
**Salt—**
Mauritius, 199 t. 15 c. £209
**Soap—**
St. John's, N.F., 5 t. 5 c. £87
**Sodium Bichromate—**
Rouen, 16 t. 3 c. £417
**Sulphuric Acid—**
Rangoon, 47 t. 16 c. £524
**Tallow—**
Rangoon, 3 t. 11½ c. £92
Rotterdam, 2 4¾ £73. 12s.
**Tar—**
Boston, 25 t. £53
St. John's, N.F., 40 brls. 30 hf-brls. 11
Gothenburg, 14 t. 8 c. £24. 15s.
**Tar and Pitch—**
Bombay, £166
**Yarnish—**
Hong Kong, 3 t. 10½ c. £60
**White Lead—**
Sydney, 2 t. £47. 10s.

## TYNE.

*Week ending August 13th.*

**Alkali—**
St. Petersburg, 29 t. 18 c.
Hamburg, 10 13
Rotterdam, 4 11
Copenhagen, 11
Genoa, 8 8
Gothenburg. 12 11
**Ammoniacal Manure—**
Genoa, 100 t. 1 c.
**Antimony—**
Hamburg, 3 t. 10 c.
**Barium Binoxide—**
Dunkirk, 11 t. 3 c.
**Bleaching Powder—**
St. Petersburg, 123 t. 19 c.
Hamburg, 56 14
Antwerp, 2 3
Rotterdam, 23 13
Viele, 11
Aarhuus, 10 19
Lisbon, 15 9
Copenhagen, 90
Trondgeim, 10 1
Genoa, 5 11
Gothenburg, 6 18
**Caoutchouc—**
Trondgeim, 6 c.
**Caustic Soda—**
Trieste, 66 t. 9 c.
Hamburg, 13 1
Antwerp. 9 17
La Goulette, 14 10
Copenhagen, 14 17
Genoa, 29 15
**Farina—**
Bergen, 1 t.
**Guano—**
Genoa, 33 t. 3 c.
**Iron Oxide—**
Copenhagen, 2 t. 8 c.
**Litharge—**
Hamburg, 1 t. 14 c.
Copenhagen, 6
**Magnesia—**
Trieste, 1 c.
Hamburg, 5
Genoa, 1 6
**Paint—**
Antwerp, 11 c.
**Soap—**
Antwerp, 1 c.
**Soda—**
Trieste, 6 t. 6 c.
Lisbon, 2 1
**Soda Ash—**
Trieste, 148 t. 18 c.
Hamburg, 2 17
Antwerp, 10 5
Laurvig, 7 19
Lisbon, 17 9
Genoa, 10 17
Gothenburg, 115 16
**Sodium Silicate—**
Trieste, 5 t. 5 c.
Rotterdam, 2 15 c.
Lisbon, 10 1
Genoa, 8 1
**Sodium Sulphate—**
Antwerp, 10 t.
**Sulphur—**
Hamburg, 30 t.
Rotterdam, 60 1 c.
**Superphosphate—**
Genoa, 100 t. 1 c.
Trieste, 220 1
**Tallow—**
Antwerp, 1 c.
**White Lead—**
Hamburg, 1 t. 3 c.
Copenhagen, 3 13
Stavanger, 1

## GOOLE.

*Week ending August 3rd.*

**Bleaching Powder—**
Ghent, 15 cks.
**Chemicals** (*otherwise undescribed*)
Hamburg, 39 cks. 25 dms.
Rotterdam, 1 1 cs.
Rouen, 3
**Coal Products** (*otherwise undesc'd.*)
Dunkirk, 50 cks.
Ghent, 1
**Dyestuffs** (*otherwise undescribed.*)
Boulogne, 1 ck. 2 cs.
**Manure—**
Bruges, 368 bgs.
**Pitch—**
Antwerp, 115 t.

## GRIMSBY.

*Week ending August 6th.*

**Alum—**
Barcelona, 20 cks.
**Ammonium Sulphate—**
Barcelona, 500 bgs.
**Coal Products** (*otherwise undesc'd.*)
Dieppe, 57 cks.

# PRICES CURRENT. WEDNESDAY, August 24th, 1892

Prepared by Higginbottom and Co., 116, Portland Street, Manchester.

*The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids :—** | | | | |
| Acetic, 25 °/₀ and 40 °/₀ | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | 50/- | | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 °/₀) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ( ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 5 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 3 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 9 | 17 | 6 |
| ,, ,, (grey) Hull | ,, | 9 | 16 | 3 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 2 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes :—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8¾ |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 10½ |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 7 |
| ,, 50/90 ,, | ,, | 0 | 1 | 3 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 6 |
| ,, (crude 60°) | per gallon | 0 | 1 | 6 |
| Creosote (ordinary) | ,, | 0 | 0 | 1½ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 0 | 11 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 44 | 1 | 3 |
| ,, Sulphate | ,, | 15 | 10 | 0 |
| ,, Oxide (copper scales) | ,, | 44 | 0 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 45 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 12 | 6 |
| ,, Litharge Flake (ex ship) | ,, | 14 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, ( brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 6 | 0 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 4 | 0 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 3 | 9 |
| **Oils :—** | | | | |
| Cotton-seed | per ton | 18 | 15 | 0 |
| Linseed | ,, | 20 | 5 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 6½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 10 | 0 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 7 | 17 | 6 |
| Silver (metal) | per oz. | 0 | 3 | 1 |
| ,, Nitrate | ,, | 0 | 2 | 1 |
| Sodium (metal) | per lb. | 0 | 3 | [illegible] |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | [illegible] |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 5 | [illegible] |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 7 | [illegible] |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 6 | 5 | [illegible] |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 | [illegible] |
| ,, Acetate (ex-ship) | ,, | 18 | 10 | [illegible] |
| ,, Arseniate, 45 % | ,, | 11 | 10 | [illegible] |
| ,, Chlorate | per lb. | 0 | 0 | [illegible] |
| ,, Borate (Borax) | net, per t o. | 29 | 0 | [illegible] |
| ,, Bichromate | ,, per lb. | 0 | 0 | [illegible] |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) net pr. ton (10 ton lots) | | 11 | 15 | [illegible] |
| ,, ,, (74 % Caustic Soda) ,, ,, ,, (10 ton lots) | | 11 | 5 | [illegible] |
| ,, ,, (70 % Caustic Soda) ,, ,, ,, (10 ton lots) | | 10 | 5 | [illegible] |
| ,, ,, (60 % Caustic Soda) ,, ,, ,, (10 ton lots) | | 9 | 2 | [illegible] |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) ,, (10 ton lots) | | 8 | 17 | [illegible] |
| ,, Bicarbonate | ,, | 6 | 12 | [illegible] |
| ,, Hyposulphite | ,, | 7 | 15 | [illegible] |
| ,, Manganate, 30% | ,, | 16 | 0 | [illegible] |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | [illegible] |
| ,, Nitrite, 98 % | per ton | 30 | 0 | [illegible] |
| ,, Phosphate | ,, | 15 | 10 | [illegible] |
| ,, Prussiate | per lb. | 0 | 0 | [illegible] |
| ,, Silicate (glass) | per ton | 5 | 7 | [illegible] |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | [illegible] |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | [illegible] |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 16 | 6 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7 |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7 |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone : Best Quality (nominal) | ,, | 5 | 0 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 96 | 10 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 21 | 0 | 0 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# HEMICAL TRADE JOURNAL

AND

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nents intended for insertion in the current week's issue the office by **Wednesday morning** at the latest.

## MANUFACTURERS AND MODERN LAW.

THE position of manufacturers, merchants, and business men in general, in regard to the law of this the enlightened Nineteenth Century, has in divers manners and times oft been the key-note of our remarks in these columns, and unfortunately in the majority of cases we have only been able to call attention to the fact that the law was a very doubtful medium for settling disputes when the nett result of the litigation came to be fully considered.

The two points which are most essential to a business man intending to go to law is to know beforehand the approximate cost and probable duration of the case.

Now, we have it on the authority of a member of the Bench that no solicitor can estimate with any approach to certainty the cost of his client's case.

An excellent instance of the truth of this statement is to be found in a case which was before the courts in the early part of this year, in which a man in order to recover the large sum of £41. went to law, and gained his point, but without costs, which same he had to pay to the tune of £700. From a commercial point of view, which is better, to spend £659. in recovering £41. and gaining gratification, or to write off the £41. as a bad debt?—which, indeed.

Then as to the question of time. He would in truth be a bold man who ventured to predict the ultimate termination of a case, when we think of the passage through the High Court of Justice, and the possible adjournment to the Court of Appeal, while the House of Lords looms in the distance, just discernable in the dim vista of futurity.

And, moreover, the vicissitudes of the law are multifarious, and this mighty machine when once set in motion has at times an unpleasant knack of refusing to stop until it has faithfully performed its function, thus leading to a finale infinitely more surprising to the prosecutor than to the prosecuted, and making the use of the law a more expensive luxury than most people care to indulge in. Speaking of this calls to mind a case which, if memory does not fail us, actually occurred some years since, and serves well to justify our previous remarks. This peculiar case arose through a steward on a steamer plying between Belfast and Peel finding on board three young men who had surreptitiously succeeded in getting on the boat without paying their fares, which amounted to 12s. The steward being responsible for making good the unpaid fares, on arriving at Peel gave all three of the young men in charge. Appearing before the magistrates in due course, the steward intimated that he had no desire to prosecute, but only wanted the fares. He then learnt that having set the law in motion he could not thus unceremoniously bring the same to a standstill, and that if the prisoners were unable to pay he would have to defray the cost. At the finish the injured but unforbearing steward found he had lost his day in coming before the Bench; his fares, 12s., and, cruelest cut of all, had to pay 30s. for the

luxury of sending three poor fellows to prison for a week. It is utterly superfluous to deduce the moral which this anecdote points, for it is only too evident.

There are many, undoubtedly, who laid to heart the moral learnt from the experience they gained for themselves or from the misfortunes of their acquaintance, for the very serious decline in the number of commercial cases appearing in the Law Courts was the subject of remark at the beginning of this year—a decline so serious that the judges awoke from their apathy and began to take active steps to reform matters, and thereby retain, if possible, the business which was rapidly slipping out of their grasp.

To their credit, be it said, the movement was not fruitless, and the Council appointed were not long in presenting a report which embodied many changes, more particularly the institution of a Commercial Court under the Queen's Bench Division, and a Commercial List on which none but commercial cases may be entered, and then only upon the sanction of the Master who acts as associate, being deputed to classify commercial and non-commercial cases. As the resolutions of the Council are brief, the simplest way will be to give them *in extenso*, which we do, they as follows:—

There shall be a cause list for London, headed the Commercial List.

In this list none but commercial causes shall be entered.

The entry of causes in this list shall be allowed or disallowed by the Associate, who shall have power to refer the question to one of the Judges allocated to try this list, from whose determination there shall be no appeal.

In May or June of each year two Judges shall be chosen by the Judges of the Queen's Bench Division to try the causes in the "Commercial List" for the coming year, beginning October 24.

These two Judges shall be continuously engaged in disposing of the causes in this list, except when they are engaged on circuit.

This list shall be divided into two and the causes in each of such lists shall be assigned to one of the two Judges, and then each shall try the causes assigned to him until he has finished his list.

It shall be competent to either Judge to expedite the hearing of a cause in his list, or to direct a transfer to the other Judge with the consent of the other Judge.

That for this Commercial List a general jury panel should be formed of persons conversant with commercial matters.

It will be seen that the improvements are intended to be thoroughly practical, and the spirit of reform is not yet on the wane, despite the extensive changes which have been made. The reply of Lord Chief Justice Coleridge to an application, which was recently made to him, to postpone a case on account of the absence of some of the counsel, reveals at one and the same time the *status* of things in the past, and the vigour of the new *régime*. His lordship refused to sanction the delaying of the case, remarking "there is something else to be considered besides the convenience of Queen's Counsel. There are the interests of the clients for instance." No wonder reform is the order of the day when a man of Lord Coleridge's stamp considers it necessary to remind a Q.C. of such an obviously fundamental fact.

How far the working of this new court will prove successful it would be hazardous at present to predict, but there is one point in particular which will facilitate matters considerably, we refer to the last clause in the resolutions which deals with juries.

Many exaggerated complaints are made on this score, but we know from personal experience of cases where the most prominent feature in a special jury was ineptitude, owing with one exception, to the absolute nescience of those summoned to sit, of the points raised in arguing the case. The formation of a general jury panel should obviate this difficulty, however; suitable juries can then be selected to deal with technical cases, for in the present day no one man can profess to know everything. *Chaque personne à son métier* is our principle, and the possibility of applying the same to the selection of special juries will, we think, stem in a great measure the flood of dissatisfaction which bid fair recently to quench altogether the ardour of the commercial litigant to do battle.

## ADULTERATION OF FERTILIZERS IN BELGIUM.

We were of the opinion that only honest merchants were engaged in the trade in fertilizers, content to obtain a reasonable profit and endeavouring to extend their custom by the integrity of their actions, and now we receive information from Belgium of cases of undoubted fraud. Happily the exception only proves the rule, there are black sheep among every flock, but the tricks of the dishonest do not affect the great majority of honest dealers.

The laboratory at Courtrai recently received four samples of ammonium sulphate containing respectively 17, 22, 27 and 49 per cent. of sand. This is an application to sulphate of ammonium of the celebrated methods of adulteration formerly applied to nitrate.

A wonderful fertilizer purporting to be of great strength is also being sold in Belgium at 17 francs, the analysis of which, made at Courtrai, gave the following numbers:—

| | |
|---|---|
| Phosphoric acid, soluble | 1·47 |
| ,, ,, insoluble | 2·97 |
| Anhydrous potash | 2·42 |
| Nitrogen as nitric acid | 0·66 |
| ,, ammonia | 0 |
| ,, in organic matter | 0 |

This material would be dear at three francs, and its promoter, if he succeeded in selling much of it, should make a considerable profit. We doubt very much, however, whether frauds of this kind actually pay. People who can be duped by swindlers of this class are only rarely to be met with, and we must confess that we have little sympathy with them, since facilities for purchasing trustworthy materials are so great that they have only themselves to blame if they allow themselves to be duped.—*L'Engrais.*

## NEW METHOD OF PLATING WITH IRON AND NICKEL.

Dr. Ludwig Monde recently lectured at the Royal Institution on "Metallic Carbonyls," in the course of which he dealt with the discovery made by himself and Drs. Langer and Quincke, that carbonic oxide gas will take up metallic nickel at a comparatively low temperature, and deposit it upon any surface heated to 180° C., and he exhibited tubes, globes, and other articles of bright, coherent metallic nickel, which had thus been deposited by gas. Works are in course of erection at Birmingham to carry out this curious process on a manufacturing scale.

They also discovered that at a moderate temperature carbonic oxide would take up metallic iron, and deposit it upon any surface suitably heated. Ferro-carbonyl is, however, exceedingly difficult to make. Dr. Monde exhibited some of it in a small hermetically sealed glass tube.

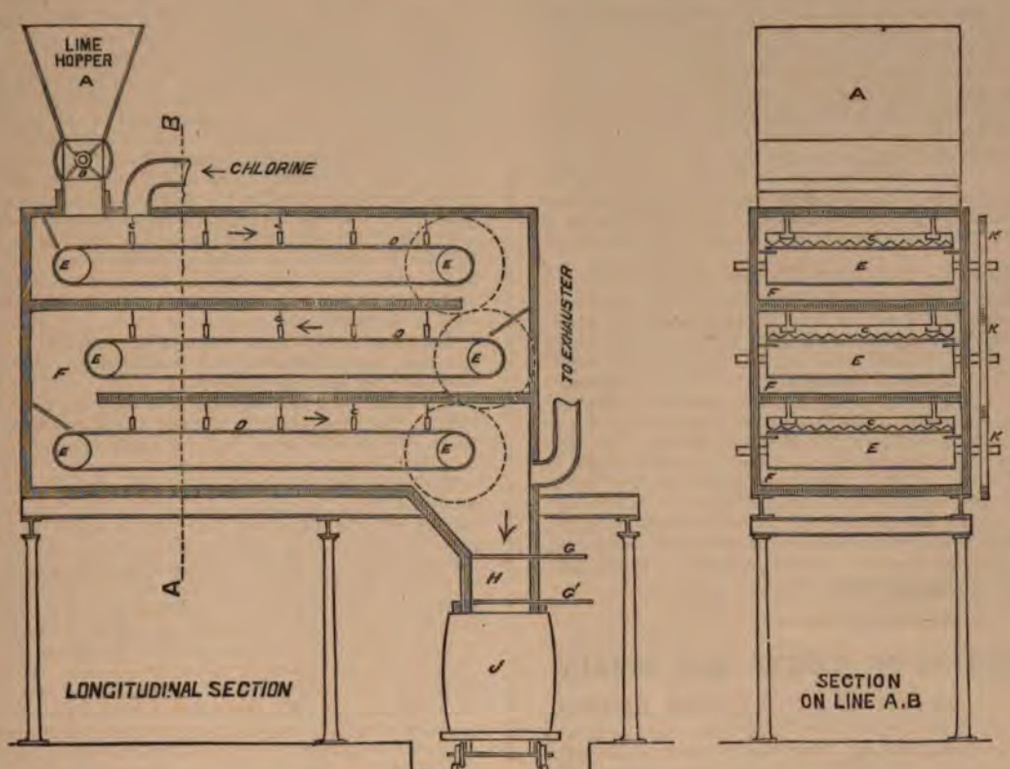
Ferro-carbonyl is, in a high degree, pyrophoric. It forms an amber-coloured liquid, solidifies below 21° C., and distils completely at 102° C.; its specific gravity is about 1,466 at 18° C. On heating its vapour to 18° C., bright iron is deposited as a mirror. It remains perfectly unchanged in the dark, but when exposed to sunlight it is transformed into a solid body, of remarkably fine appearance, of gold colour and lustre.

Soon after Drs. Monde, Langer and Quincke made known the existence of this body, Sir Henry Roscoe found it in carbonic oxide gas which had stood compressed in a cylinder for a considerable time, and expressed the opinion that the red deposit which sometimes forms in ordinary steatite gas burners is due to the presence of this substance in ordinary illuminating gas. Its presence in the compressed gas used for lime lights has been noticed by Dr. Thorne, whose attention was called to the fact that this gas sometimes will not give a proper light because the incandescent lime becomes covered with oxide of iron.

## IMPROVEMENTS IN THE PRODUCTION OF BLEACHING POWDER.

ONE of the chief points upon which the arguments in favour of shorter hours in the chemical trade are hung is the arduous and trying occupation of those engaged in the production and packing of bleaching powder. Any improvements which will enable manual labour in this particular department to be reduced to a minimum, will therefore, in the majority of cases, be eagerly sought for by managers for innumerable reasons.

We take this opportunity of calling the attention of those whom it may interest to the recent paten of Messrs. J. M. and A. Mills. This patent consists virtually of an automatic bleach-chamber. Although the apparatus is designed to effect the saturation of any solid material with gases or vapours, we shall confine our attention to the application of this apparatus to the absorption of chlorine gas by lime, for the production of bleaching powder.




For this purpose a chamber, or series of chambers is constructed of any suitable material, preferably of slate slabs. In the chamber, or in each of the chambers of a series, an endless belt is placed, of any suitable material, preferably of asbestos cloth, which has been found suitable in every way, there being no difficulty in making the bands, which revolve upon two or more drums or cylinders. Upon the roof of the first chamber a hopper is situated to receive the material intended for saturation, and at the bottom end of the last chamber is a receiving chamber into which the material falls after saturation. The endless belt is actuated by any mechanical means, such as spur gearing or any convenient method.

The hopper into which the material to be saturated is placed, is fitted with an adjustable admission valve so arranged that the quantity falling through upon the travelling belt can be increased or diminished at will.

Depending from the roof of each chamber at convenient distances, a number of combs are fixed, for the purpose of turning over the materia as it is being carried along by the travelling belt, thus presenting continual change of faces in the material to be acted upon by the gas.

The apparatus, as will be seen from the drawing, is so simple that it is quite unnecessary to give any explanation of the method of working, the following brief references to the letters in our illustration being quite sufficient. A is the hopper receiving the lime. B is an admission valve, which works automatically, and is so arranged that the quantity of lime admitted can be increased or reduced at will. C are the fixed combs whereby the lime is constantly turned so as to present a fresh surface, and also the depth of the layer of lime on the conveyor is regulated. D are the travelling belts of asbestos. E the cylinders upon which the same revolve. G and H are plate slides for admitting the saturated lime to the receiving cask J, while K are the spur gear wheels for driving the asbestos belts.

It will also be seen that the chlorine gas enters with the lime, being drawn through the plant by an exhauster.

## ARTIFICIAL BUTTER.

IN the present day when it seems that everything is nothing unless it can be prepared by artificial means, it may be interesting to trace the attempts that have been made in this direction in years past. Mege while investigating the subject of milk and its productions noticed that cows which had been deprived of food continued to give milk, which milk continued to yield butter. He inferred from this that the fat of the milk was changed to butter. In 1869 he instituted a series of investigations at the suggestion of the late Emperor Napoleon III., to make a substitute for ordinary butter from the fat of animals, which contains 86 per cent. of fat ½ per cent. of casein, 1·10 per cent., of ash, and 14 per cent. of water.

In 1874, W. E. Andrew, patent of August 11, 1874, effected a separation of the oleomargarine by subjecting the fat to pressure, at a temperature sufficient to effect such separation, and allowing the oily product to run off to a cool place as fast as expressed and without the use of water. John Hobbs, patent August 18, 1874, avoided the use of alkalies used in the Mege process, by mixing molten tallow freed

from animal tissue, with churned cream, allowing this to granulate, and finally whipping the same until it assumes a frothy appearance.

G. Cosine, patent of February 15, 1876, makes a mixture of animal oleine, olive, peanut or almond oil, lactic acid, and lappered cream or milk.

Dr. O. Boysen, patent of January 11, 1881, adds butyric acid to oleomargarine partially saponified by bicarbonate of soda; and W. H. Burnett, patent of October 24, 1882, makes an intimate mixture of lard, beef-suet, butter, glycerine salt, water and colouring matter.

It will be observed that all the patents granted since the patent to Mege contemplate the incorporation in one way or another, of the butter principle of cream or milk with one or all the constituents of animal fat. He succeeded in making an excellent substitute, by extracting the oleine from fat and churning this with milk and water, to which annatto was used for colour; the mass was subsequently salted and the resulting product constituted a palatable butter substitute.

Nothing prior to the patent of M. Mege, December 30, 1873, was patented in this country which could properly be termed "artifiicial butter," that is, where natural fat was subjected artificially to processes analogous to those which it undergoes in the elaboration of the cow's fat through her cellular and mammary tissues, and at the necessary temperature. Common butter had been compounded with foreign materials like the yoke of eggs and fresh milk to improve it, and a patent to this effect was issued to Mrs. D. H. Gregory, September 10, 1867, but this although amounting to an artificial product did not constitute "artificial butter." Other artificial products, prior to the Mege patent, are described by H. W. Bradley, January 3, 1871, and A. Paraf, April 8, 1873. The Bradley product was merely a mixture of beef or mutton suet, vegetable or fixed oils, and hog's lard, and was simply an attempt to make a suitable substitute for lard from the grosser fats. The Paraf patent was a step in the direction taken by Mege, but did not go beyond a mere separation of the oleomargarine from the stearine and membrane of the fat, although based on the physiologic principle, that the nutritive property of animal fat is confined mostly to the oleomargarine, the stearine being oxidized by pulmonary respiration.

The Mege process may be divided into four distinct steps: (1) Crushing, grinding, or disintegrating the fat by any suitable machinery and washing the same by a stream of water which separates all soluble matter. (2) The separation and removal of the membrane and foreign material by gastric juice, produced from the half of the sheep's stomach treated with three litres of water containing thirty grams. of bisulphate of lime. This step should be conducted at a temperature of about 125° Fahr. (3.) The purified fat is packed in sacks of woollen or cotton cloth and subjected to pressure or to centrifugal action. The oleomargarine separated from the stearine, but the temperature must be kept to about 80° Fahr., to allow the oleomargarine to flow freely. (4) Churning the oleomargarine with a small quantity of curds of milk or pure milk, and adding common salt and suitable colouring matter, *e.g.*, annatto. Butter made by this process contains about 86 per cent. of fat, 1 per cent. of casein and ash, and 13 per cent. of water, comparing favourably with ordinary market butter.

## THE EXTRACTION OF NICKEL AND COBALT.

THIS process is described in the late number of the *Engineering Journal* by Mr. Louis Palatin, for a long time acting as mining engineer in New Caledonia, U.S.A. The veins of cobalt which occur are irregular impregnations of absolite. It is easily cut with a knife, having a characteristic blue-black lustre. The mineral varies in the different mines considerably, but the following analysis will give a tolerably correct idea of the general composition of the ore:—

| | Per Cent. |
|---|---|
| Peroxide of manganese | 18·00 |
| Protoxide of cobalt | 3·00 |
| Protoxide of nickel | 1·25 |
| Silica | 8·00 |
| Peroxide of iron | 30·00 |
| Aluminum | 5·00 |
| Lime | 1·00 |
| Magnesia | 1 00 |
| Loss by drying (water and oxygen in excess) | 32·75 |
| Total | 100·00 |

The cobalt and nickel are always found in the state of the protoxide and the manganese in different states of oxidation. The amount of aluminum manganese and silica varies; but it appears that the relative proportion of cobalt and nickel is constant.

For many years—over ten—the economical extraction of cobalt and nickel has been the subject of many experiments—melting the mineral in different shaped furnaces treating the resulting mass by the wet and dry processes—which have given but mediocre results, and none have succeeded in simplicity or efficiency; and this led t director of the Maletras works to take the subject up, and, with t assistance of his mining engineer, a very successful and interesti solution has been found. Although appearing a little complicated, is not really so, and is carried out on quite a large scale here, and th without any costly reagents and with few operations. The whole of t cobalt and nickel is practically extracted.

The following is a description of the method:—

The mineral is easily crushed, and in a state of powder is thro into large vats filled with a solution of the sulphate of protoxide of ir and thoroughly mixed up by a jet of steam. The manganese, cobalt, and the nickel are taken up by the liquid in the form sulphates. The iron that is in the mineral, as well as that in solution, is precipitated in the form of peroxide and partly sulpha with the aluminum and silica. After some hours, adding a suffici quantity of the mineral, the liquor is tested by permanganate of pota which will show if the liquid has had all the iron precipitated. Fr this results (1) a liquid containing in solution the manganese, col and nickel; (2) a residue containing the iron and aluminum. T liquid is drawn off; and the residue is passed through the filter pr and roasted (calcined) and used as colcothar, a by-product. T sulphate of protoxide of iron used in this operation is made by atta ing scrap iron with bisulphate of soda. The bisulphate of soda co tains free sulphuric acid and forms, with the scrap iron, sulphate protoxide of iron and also sulphate of soda, used subsequently. T sulphate of soda is separated by crystallization. The liquid containi the manganese, cobalt, and nickel is run into stone basins, to which added the sulphate of soda, which precipitates the whole of the cob and nickel, but leaves the greater part of the manganese in solutio The precipitate containing the cobalt and nickel and a small quant of manganese is washed and passed through the filter press and th treated with a perchloride of iron (produced in one of the succeedi operations) which dissolves the manganese, and so this second operati gives (1) a black precipitate of comparatively pure sulphides of cob and nickel; (2) a liquid containing sulphate of manganese. The p cipitate is now treated to separate the two metals. To the liquid added chloride of lime, obtained in one of the subsequent operatio and the manganese precipitated by the lime becomes a by-prod used in the Weldon process.

The sulphide of soda is produced by boiling in a closed vessel so ash and the sulphate of soda residue from making the sulphate protoxide of iron already described.

The third operation consists in drying the sulphides of cobalt nickel, and then carefully roasting them in a reverberatory furna when, if carefully done, the sulphides become converted into soluble sulphates of the two metals.

The fourth operation is the most difficult and remarkable one. T soluble sulphates are now washed with boiling water. The solutio treated with the chloride of lime, of this liquid, (*a*) containing chlo of cobalt and nickel a certain quantity is taken, and the cobalt and ni are precipitated by lime. This precipitate of oxide of nickel and co is washed to remove any chloride of lime that might remain, an placed in a suitable vessel, a sufficient quantity of water added, an submitted to a current of chlorine gas and air under pressure to prod a thorough mixing. The result is that the metals, from simple oxi change into peroxides of cobalt and nickel. To these peroxide added a new portion (*b*) of the liquid, (*a*) and the two mixed thoroughly by a jet of steam, when a curious change takes place. T peroxide of nickel, changing into protoxide, enters into solution, an displaced continuously by an equivalent proportion of cobalt from first solution. The liquid then contains chloride of nickel, the co being precipitated as peroxide of cobalt. The second portion (*b* calculated so as not to displace the whole of the nickel. The liqui now run off and a fresh quantity (*a*) added, and so on until one fi by testing that the precipitate contains nothing but peroxide of co pure, when the operation is finished. The solutions containing ni are treated with lime, and the nickel is precipitated as oxide of nic The products of the operation are (1) protoxide of nickel, (2) peroxid cobalt. The oxides of nickel and cobalt are passed into the fi press, dried and calcined.

In one of the operations a current of chlorine gas is used. I produced by attacking the cobalt ores with hydrochloric acid, wh as well as producing the gas, furnishes a solution of perchloride of ir manganese, cobalt, and nickel, which is used in one of the foreg operations.

In this process there are two of the operations which are claime original, the first operation using liquid sulphate of protoxide of ir and the latter separation of the nickel and cobalt.

At present about 150 tons of ores per month are treated contain 3 per cent. of cobalt and 1¼ per cent. of nickel, and, as cobal worth about $2·20 per pound, and nickel 50 cents, the value produ is important.

The total production of cobalt in the world is about 200 tons, eq to about $1,500,000.

It is expected shortly to still further simplify the system by melting the mineral at the mines, and so concentrating the minerals, with a saving in transport; and the minerals so treated will commence at the third operation of the description given. An experimental furnace erected has fully justified these expectations.

## THE WHITE SANDS OF HAVRE AND OF MARBAIS.

INVESTIGATORS who undertake experiments on vegetable nutrition on a small scale, growing the plants in boxes or bottles, are interested in finding a medium of cultivation which is as free as possible from fertilizing principles.

As we have frequently been asked for information on this subject, we have thought it useful to publish the following analysis carried out during the last few years at the agricultural station. These analyses give the composition of the sand as washed on the large scale and dried in the air; further washings would lead to a still higher degree of purity.

| | Sand from Roeulx (Havre). | | Sand from Tilly (Marbais). | |
|---|---|---|---|---|
| | Fresh. | Dry. | Fresh. | Dry. |
| Water | 54·30 | — | 43·07 | — |
| Organic matter | 0·38 | 0·40 | 0·90 | 0·94 |
| Lime | 0·09 | 0·10 | 0·02 | 0·02 |
| Magnesia | 0·02 | 0·02 | 0·05 | 0·05 |
| Oxides of iron and aluminium | 0·07 | 0·07 | 0·77 | 0·80 |
| Potash | 0·01 | 0·01 | 0·13 | 0·13 |
| Soda | 0·03 | 0·03 | 0·10 | 0·10 |
| Phosphoric acid | 0·03 | 0·03 | 0·03 | 0·03 |
| Sulphuric acid | 0·02 | 0·02 | Traces | Traces |
| Sand and silica | 945·05 | 999·32 | 954·93 | 997·93 |
| | 1000·00 | 1000·00 | 1000·00 | 1000·00 |
| The organic matter contained: | | | | |
| Nitrogen per 1000 | 0·005 | 0·005 | 0·002 | 0·002 |
| Weight of a litre | 1·400 kilos. | | 1·500 kilos | |

CALCAREOUS RESIDUES FROM SUGAR EXTRACTION.

The analysis of the deposits from sugar extraction given in the principal treatises on fertilizing materials (Heiden, Wolff, Müntz, etc.) attribute to this waste product a percentage of nitrogen varying from 0·2 to 1. In our table "average composition of fertilizing materials" we also fixed the richness of this material at 0·8 per cent. of nitrogen, as a mean of numerous analysis. Since almost all the sugar works have completely changed their process of manufacture this number is actually much too high. The publication of the following analysis is therefore of interest to those who are using this calcareous fertilizer. They shew the important change which has taken place in the composition of this substance; they apply to fresh material exposed to the open air, coming from different works in which the diffusion process is used. No. II. is an average sample produced in 1891-92, at a sugar works in the province of Lügi.

| | I. | II. |
|---|---|---|
| Water | 49·63 | 38·47 |
| Organic Matter | 4·42 | 4·85 |
| Mineral ,, | 45·95 | 56·68 |
| | 100·00 | 100·00 |

The organic matter contains—

| | I. | II. | III. | IV. |
|---|---|---|---|---|
| Nitrogen | 0·10 | 0·09 | 0·18 | 0·09 |

The mineral matter was composed of—

| | I. | II. |
|---|---|---|
| Lime | 24·65 | 30·80 |
| Magnesia | 1·49 | 0·57 |
| Potash | 0·51 | 0·07 |
| Phosphoric acid | 0·47 | 0·61 |

The average strength in nitrogen, of the samples analysed, is therefore only 0·12%.

In spite of this important diminution, this material is still of value as a fertilizer, and is not sufficiently appreciated by a large number of farmers.

The application of 40,000 kilos. per hectare would restore to the soil, in round numbers, 50 kilos. of nitrogen and 200 kilos. of phosphoric acid, in a very good form.

This amount corresponds to 2,000 kilos. of wool waste, containing 2·5% of nitrogen, and to 1,200 kilos. of a 13% superphosphate, without including the amount of potash present. There remains to be considered the beneficial effect of this quantity of finely divided calcium carbonate upon the physical properties of the soil, on the nitrification of the nitrogenous organic matter, on the decomposition of the double silicates, and at least in acid soils on the saturation of the free organic acids.

MARL FROM NIVELLES.

The deposits of marl, so abundant in Belgium, have never yet been made the object of an analytical examination undertaken to ascertain their fitness for agricultural use. We propose to supply this lacking information by publishing, from time to time, analyses of the various deposits of the country, commencing with those of Nivelles.

| | I. From the boundary of the Haut. Ithe. Air dried. | II. From Baudemont. Air dried. |
|---|---|---|
| Water | 5·12 | 4·79 |
| Lime | 22·61 | 22·90 |
| Magnesia | 0·47 | 0·60 |
| Potash | 0·31 | 0·19 |
| Soda | 0·64 | 0·20 |
| Oxides of iron and alumina | 1·43 | 1·10 |
| Carbonic acid | 17·62 | 18·27 |
| Sulphuric ,, | 0·01 | 0·01 |
| Phosphoric ,, | 0·01 | 0·04 |
| Sand and silica | 51·78 | 51·90 |
| | 100·00 | 100·00 |

These numbers show that the deposit is rich enough to be worked with advantage where the deposits are not deep. Its calcareous and silicious nature renders it very suitable for improving strong soils.

## THE USE OF BENZINE IN BLEACHING.

MAHIEU'S process consists in mixing benzine with the solutions of carbonate of soda used in the different bleaching operations, or with the baths of chloride of lime or other bleaching chlorides. This application of benzine in the lyes has the effect of dissolving and removing the vegetable colouring and resinous substances contained in the textile matters. Taking, for instance, 1,000 kil. linen to bleach, the way of operating after this method is as follows, viz. :—

In a sheet-iron kier or other reservoir containing 200 lit. water, 50 kil. soda (preferably Solvay soda) are heated for fifteen minutes at about 100°C., when 1¼—1½ lit. benzine is added and heating continued for ten minutes, the mixing operation taking up twenty-five minutes in all. After standing for ten minutes the mixture is let out into another kier placed under the first, containing 5,000 lit. hot water and 12½ kil. lime. This lime-water bath is prepared one-hour in advance and heated to 90—100°C. This new mixture is heated for another hour, and then left to stand for twelve hours before using it. The 1,000 kil. linen being placed in a proper tub, and the prepared lye run in, it is boiled for three hours under 1½ at. pressure, instead of five hours as usual.

This process applies to the whole habitual course of operations, which are more or less often repeated according to the degree of bleaching required, that is:—

1. Benzine lye as above indicated.
2. Rinsing in running water.
3. Chloride of lime bath.
4. Rinsing.
5. Neutralisation of the chlorine.
6. Rinsing.
7. Grass bleach.

Benzine is also added to the chlorine bath, thus: mix 8 kil. benzine with 60 kil. Solvay soda, and let it boil up; run this mixture into a cistern containing 4,000 lit. solution of lime 8°, or about 4% benzine. Then the chlorine baths are prepared, as stated, to the required strength, and the yarns or linens laid down in them for the suitable period.

This process renders all the ordinary bleaching operations more active, at the same time shortening them, maintains the fibres at their original strength, and affords a considerable saving in steam and chemicals.—*Textile Colourist.*

UNINFLAMMABLE PETROLEUM.—Numerous processes have figured of late in the patent list whereby it is claimed that petroleum could be rendered inexplosive and also uninflammable. One of these consists in adding to about forty gallons of petroleum two pounds of copper sulphate and stirring the whole well. After about six hours standing the oil is ready for use.

# Official Memoranda.

*(From the Board of Trade Journal.)*

## NEW CUSTOMS TARIFF OF CUBA.

The following is a statement of the duties leviable on certain articles selected from the new general and special tariffs of Cuba. It also affords a comparison of the advantages enjoyed by the United States under the new treaty.

NOTE.—The par value of the peso is 4s 2d.

| Classification of Articles. | General Tariff. | Special Tariff. | Amount of Rebate on Duties applicable to Imports from the United States. |
|---|---|---|---|
| CLASS I. | Pes. cts. Per 1,000 kilogs. | Pes. cts. Per 1,000 kilogs. | |
| *Group 2.—Coal.* | | | |
| Coal and coke ... ... ... | 0·75 | 0·66 | Free. |
| *Group 3.—Bituminous Shale, Bitumen, and Bituminous Products.* | Per 100 kilogs. | Per 100 kilogs. | |
| Pitch, tar, creosote crude, minerals, asphalts, bitumen, and shale ... | 0·45 | 0·30 | Free. |
| Naphtha, vaseline, crude natural petroleum, and crude oils derived from shale ... ... ... | 1·20 | 1·10 | Free. |
| Benzine, gasoline, petroleum, and other refined oils... ... ... | 5·30 | 5·20 | 25 per cent. |
| *Group 4.—Minerals.* | | | |
| Mineral ores ... ... ... | 0·25 | 0·20 | — |
| CLASS III. | | | |
| SUBSTANCES EMPLOYED IN PHARMACY, PERFUMERY, AND CHEMICAL INDUSTRIES. | | | |
| *Group 1.—Simple Drugs.* | Per 100 kilogs. | Per 100 kilogs. | |
| Cocoa-nut and palm oil, and other heavy oil ... ... ... ... | 7·25 | 6·25 | 25 per cent. |
| Other vegetable oils, excepting olive oil ... ... ... ... | 10·75 | 10·05 | 25 per cent. |
| Spirits of turpentine ... ... | 7·12 | 6·12 | Free. |
| Dyewoods and tannery bark ... | 0·50 | 0·40 | Free. |
| Seeds of rape, of flax, and other oleaginous seeds, including coprah or cocoa-nut... ... ... | 3·60 | 3·05 | 25 per cent. |
| Resin, pitch, tar, and other similar products ... ... ... ... | 1·10 | 0·90 | 25 per cent. |
| | Per kilog. | Per kilog. | |
| Opium ... ... ... ... | 2·07 | 2·00 | 25 per cent. |
| | Per 100 kilogs. | Per 100 kilogs. | |
| Garancine or madder, and other vegetable products not specified under other headings ... ... | 10·20 | 9·20 | 25 per cent. |
| *Group 2.—Colours, Dyes, and Varnishes.* | | | |
| Ochres and natural earths, used in painting, and clay ... ... | 1·30 | 1·10 | 25 per cent. |
| Indigo and cochineal ... ... | 36·00 | 35·00 | 25 per cent. |
| Dye extracts ... ... ... | 21·00 | 20·00 | 25 per cent. |
| Varnishes ... ... ... ... | 19·00 | 18·00 | 25 per cent. |
| Colours, in powder or lumps ... | 5·50 | 5·05 | 25 per cent. |
| Do., prepared, and inks ... ... | 12·25 | 11·20 | 25 per cent. |
| | Per kilog. | Per kilog. | |
| Do., made from coal and other artificial colours, and madder and its mixtures ... ... ... | 0·50 | 0·36 | 25 per cent. |
| *Group 3.—Chemical and Pharmaceutical Products.* | Per 100 kilogs. | Per 100 kilogs. | |
| Muriatic or chlorhydric, nitric, and sulphuric acids ... ... ... | 0·55 | 0·50 | 25 per cent. |
| | Per hectol. | Per hectol. | |
| Natural mineral waters ... ... | 2·20 | 2·10 | Free. |
| | Per kilog. | Per kilog. | |
| Alkaloids and their salts ... ... | 12·60 | 12·00 | 25 per cent. |
| | Per 100 kilogs. | Per 100 kilogs. | |
| Alum and sulphur ... ... ... | 0·45 | 0·40 | 25 per cent. |
| Alkaline carbonates, barillas, caustic alkalis, and ammoniacal salts, *excepting sulphate* ... ... | 0·75 | 0·65 | 25 per cent. |
| Chloride of lime ... ... ... | 1·60 | 1·50 | 25 per cent. |
| Chloride of potash, sulphate of soda, chlorine and carbonate and sulphate of magnesia ... ... | 1·65 | 1·50 | 25 per cent. |
| Chloride of sodium (common salt).. | 0·50 | 0·35 | 25 per cent. |
| Glues and albumina ... ... | 8·95 | 8·70 | 25 per cent. |
| | Per kilog. | Per kilog. | |
| Phosphorous ... ... .. | 0·15 | 0·11 | 25 per cent. |
| | Per 100 kilogs. | Per 100 kilogs. | |
| Nitrate of potash (saltpetre), chlorate of potash, and oxides of lead | 3·75 | 3·60 | 25 per cent. |
| Sulphate of copper and of iron, and pyrolignite of iron ... ... | 1·50 | 1·20 | 25 per cent. |
| | Per kilog. | Per kilog. | |
| Chemical products not specified ... | 0·15 | 0·10 | 25 per cent. |

## THE WATER SUPPLY OF PORTO RICO.

Mr. Reginald H. Hertslet, Her Majesty's Consul at Porto Rico, in a report to the Foreign Office, says that on the 27th June last a contract for the construction of an aqueduct for supplying the city of St. John's with water was signed by the mayor on behalf of the muncipality on the one hand, and by Lieutenant-Colonel Granger, representing a London syndicate, on the other. The event has been made an occasion for rejoicing by the inhabitants of St. John's and the people living in the vicinity, who will, within a comparatively short space of time, be enabled to obtain an inexhaustible supply of pure water, instead of being dependent upon rain water of uncertain quantity and unsatisfactory quality, collected in tanks and casks.

## CINCHONA AND INDIGO CULTIVATION IN INDIA.

The following account of cinchona cultivation in India during the 1890-91 season is taken from the "Statement exhibiting the Moral and Material Progress and Condition of India during the year 1890-91," an annual volume published by the Indian Government. The sign "Rx" stands for tens of rupees :—

On the Government plantations of the Darjeeling district in Bengal there were at the end of the year 4,515,000 cinchona trees, or 165,000 less than in the preceding year. Of the existing trees nearly three-quarters are of the pure quinine-yielding variety, and less than one-third belong to the cinchonine-yielding variety. During the year 367,000 trees were uprooted for their bark or died, while 200,000 were planted out; all the new plantations have for some years past consisted of quinine-yielding varieties. The harvest of dry bark was 294,000 lbs. The Darjeeling plantations have now yielded since their formation five million pounds of dry bark for use in India. The factory produced, during the year, 4,031 lbs. of cinchona febrifuge, and 3,789 lbs. of sulphate of quinine; this latter quantity was double the quinine yield of the previous year. The manufacturing operations were conducted entirely by the fusel-oil process, and another year's experience has increased the confidence in the simplicity and efficiency of the system. "The quinine has been shown by repeated analysis to be of the highest possible purity." It is now sold to public institutions and Government officers at one rupee per ounce, while the febrifuge is sold at 10 annas per ounce. The issues from the factory were 3,837 lbs. of febrifuge, and 3,789 lbs. of quinine. The stock of dry bark is increasing, and the output of the factory exceeds the demand, while local boards are buying for their hospitals inferior quinine at 1¼ rupees per ounce. Steps are being taken to secure the custom of these public institutions; and if the demand on the factory increases considerably further reduction in the issue price will be possible. The sales and issues of medicine during the year yielded a profit of Rx. 1,896, after meeting all charges for maintaining the plantations and working the factory. It is proposed in future to manufacture only quinine, and gradually to cease making cinchona febrifuge at the Darjeeling factory.

In the Government plantations on the Nilgiri Hills in Madras there were at the end of the year 1,762,000 cinchona trees, of which only 51,000 belong to the red bark, or inferior variety; the total is 52,000 more than in the previous year. A crop of 131,000 lbs. of dry bark

was gathered, of which 96,000 lbs. were made into quinine and 4,000 lbs. sold. At the end of the year the bark in store was 511,000 lbs. The manufacture of quinine by the new oil process was checked by a scare of influenza among the workmen and by partial failure of the vats. Towards the end of the year the vats had been repaired and the manufacture went on; 2,928 lbs. of quinine were produced against an estimate of 4,000 lbs. All the quinine made was issued during or after the end of the year; the Ceylon Medical Department took 800 lbs., and 64 lbs. were issued in paper packets of five grain doses for sale or distribution in villages. The retail price of 100 doses was 1½ rupees, or 3 pie (one farthing) per dose. It is expected that the factory will work full power through the year, and will gradually consume all the dry bark in store. The quinine is reported by the Government quinologist to be "well up to the standard of the British Pharmacopœia"; there was some complaint regarding the appearance of the quinine crystals in the earlier parcels, but subsequent parcels were up to the standard in this respect. The paper packets of quinine distributed to villages appear to have been eagerly bought during the fever season. The selling price of quinine has been reduced to 14¾ rupees per pound. The value of the quinine issued during the year and in stock was Rx. 7,300 against a total expenditure of Rx. 7,500 during the year. Experimental plantings of jalap and ipecacuanha are doing well at the cinchona plantation; both climate and soil are said to be specially favourable for jalap tubers.

The area under cinchona on private plantations is returned at about 13,000 acres, chiefly in Madras, Mysore, and Coorg. From the last-mentioned district it is reported that the cultivation of cinchona is being gradually abandoned owing to the low price of bark in the market, and because the shade of cinchona trees injures the coffee plants. The exportation of cinchona bark from India by sea, which was 3,074,098 lbs. in 1888-89, and 1,854,632 lbs. in 1889-90, rose again to 2,995,845 lbs. in 1890-91.

The season of 1890 was not favourable for indigo, and the actual yield in Bengal was 100,733 maunds, against 144,000 maunds in 1889.

The price of indigo was a little higher than in 1889, but much below the average of previous years. One reason why indigo has fallen in price is said to be that consumers now-a-days prefer cheap goods that look well for a time in preference to more expensive articles that last long. This tendency tells in favour of aniline dyes, as compared with the more costly though durable indigo dye. The estimated yield of Bengal indigo for 1891 is 145,000 maunds, the season having turned out well. The exportation of indigo from India by sea were, in 1890-91: Bengal, 7,819,728 lbs.; Madras, 4,557,852 lbs.; Bombay and Sind, 885,920 lbs.; across the land frontier, 476,672 lbs.; total, 13,740,172 lbs. Valued at Rx. 3,118,764.

These figures show a falling off of 4,801,892 lbs., and Rx. 812,848 in comparison with the previous year.

## THE PRODUCTION OF HEATING GAS AND AMMONIA.

By A. HENNIN, M.A.I.M.E.

IN the dry distillation of coal, the production of ammonia does not exceed 10% of the total nitrogen, being limited by the water of combination of the coal. This conclusion is corroborated by the fact that in blast furnaces where raw coal is used, although all the coal is consumed, and consequently all the nitrogen is liberated, the product of ammonia does not exceed 15% of the total nitrogen. In addition to the water of combination in the coal, there is doubtless also a proportionate effect, due to the water of combination of the iron ore and flux, perhaps slightly influenced by traces of water carried into the furnace with the air blast.

If all the nitrogen in coal could be converted into ammonia, a coal containing 1¾% of nitrogen would produce per ton the equivalent of 164 pounds of sulphate of ammonia. This result is not obtainable in blast furnaces; it is impossible in the manufacture of illuminating coal gas or of coke; but it is realisable to a large extent in the manufacture of heating gas for metallurgical and other uses.

The nascent hydrogen from the water of combustion of the coal is the main element which accomplishes the transformation of the nitrogen into ammonia. Hence, the more water the more ammonia. If a sufficient outside supply of water is given, all the other conditions being favourable, the total amount of the nitrogen may be secured as ammonia. Practice has demonstrated the correctness of this view. In 1877, Dr. H. Grouven, of Leipzig, discovered that in a large excess of superheated steam, when the necessary conditions of temperature, time, and contact are supplied, combined nitrogen is transformed into ammonia. He applied his discovery to an analytical method of nitrogen determination, which gives concordant results with other accurate methods. Later on, Beilby, Foster, Guegen and others demonstrated that the coke, which retains a large percentage of nitrogen even at a light red heat, parts with it in the form of ammonia in the presence of a large excess of steam at an intense heat. Since, in accomplishing this result, the steam is decomposed by carbon, liberating hydrogen, and the carbon is transformed into carbon dioxide and carbon monoxide, it is evident that we have here the elements of a process for producing simultaneously large quantities of ammonia and also heating gas of high calorific value. Between this theoretical reaction, however, and the establishment of an economical manufacturing process, there were many difficulties to overcome. As has been pointed out, the main conditions for the formation of ammonia are eminently favourable to the production of a good heating gas. But high temperature is not compatible with a large excess of steam unless the latter be intensely superheated; and such a temperature cannot be maintained for any considerable time without an outside supply of oxygen or an expensive external heating. Moreover, steam in large excess is liable to produce a gas very high in carbon dioxide, and hence of comparatively little calorific value. Nor should it be forgotten that ammonia, under favourable conditions, is decomposed at a temperature far below that which is required to decompose water and reduce the carbon dioxide into carbon monoxide. The practical operation, therefore, must be so conducted as to maintain the proper heat, make the conditions for the decomposition of ammonia as unfavourable as possible, and, at the same time, produce such a gas as is required in the metallurgy of iron and steel where rapidity of heating and melting, with the lowest percentage of waste, is a prime consideration.

I have found that when high pressure steam is moderately superheated and evenly distributed and diffused in the glowing mass, a limited supply of air, drawn into the generator, is sufficient to maintain the temperature needed to admit continuously from one to one and three-quarters pounds of high pressure steam to the pound of coal, and that this proportion of steam is ample to provoke the necessary reactions which transform into ammonia 50 to 60 per cent. of the total nitrogen of the coal, and still to produce a gas of the following composition.

| | Per cent. |
|---|---|
| Carbon dioxide | 10·50 |
| Oxygen | 1·00 |
| Carbon monoxide | 20·00 |
| Methane and homologous compounds | 4·50 |
| Hydrogen | 38·00 |
| Nitrogen | 26·00 |
| | 100·00 |

This gas is rather high in carbon dioxide, but the total of combustible matter is considerable, and the efficiency of the gas in a regenerative furnace for heating iron is very great. It burns with a sharp, white-bluish flame, not without luminosity, and heats more rapidly and more economically than the ordinary Siemens gas.

It would seem, at first glance, that the admission of 1 to 1·75 pounds of steam to the pound of coal would have a high cooling effect, hindering the steady production of a gas of the above composition, if the carbon is taken as the only source of heat. Practice shows, however, that such is not the case. There are different ways of accounting for this result. In the first place, independently of the heat furnished by the high-pressure superheated steam, many reactions producing heat occur, such as the formation of the ammonia, &c. On the other hand, the gas being exhausted at high speed, the operation takes place under a constant partial vacuum. It is presumable that, under such conditions, the chemical reactions to which we are accustomed are modified, and that we are in the presence of phenomena of physical and thermo-chemical order, which actuate the distillation of the volatile matter, promote it at a low temperature, and generally facilitate the reactions. Whatever the explanation, the actual result is, that not only there is no cooling effect in the continuous production of the above gas, but that the temperature has a tendency to increase in the zone of combustion. If the steam has been sufficiently superheated and diffused thoroughly in that zone, it is practically all decomposed during the operation; and the reactions proceed without intermission, the liberated nitrogen being transformed in the presence of nascent hydrogen into ammonia, while the resulting fuel gas, as the above analysis shows, is still high in hydrogen.

The danger of the dissociation of the ammonia is not as great in practice as has been anticipated. If we remember in what infinitesimal proportion the ammonia is present, diluted, and hence practically protected by the other gases, it is evident that the chance for decomposition, with ordinary care, is very small. And if the product is instantaneously exhausted from the hot atmosphere, carried into the cooler zone immediately above, and led out through green fuel on the top, the ammonia is secured.

With well-devised producers and the proper plant, when the art of managing and controlling the heat in the different zones of the fuel bed has been mastered, there is no difficulty in producing regularly, with the proper amount of steam, from each ton of coal, 70 to 80 pounds o sulphate of ammonia; 130,000 to 150,000 cubic feet of heating gas of

high quality; and, in addition, some 15 to 20 gallons of tar, according to the nature of the coal.

The generator must be perfectly accessible, so that it may be easily cleaned, and the coal may be perfectly broken through. The aim should be to keep the fuel like a sponge, but without holes or cavities. The advantages of a good stirring are obvious; it insures the complete diffusion of the steam through the glowing mass, maintains the high temperature in the lower part of the generator, and keeps the top cool, thus tending to secure economy in coal, the minimum of necessary cooling-surface in the condensers, and the maximum yield of ammonia. The carbon dioxide should be kept at a minimum. Its formation is a function of temperature; the lower the temperature at which the carbon and air or the carbon and steam come in contact, the more carbon dioxide is formed. It must not be forgotten that the depth of the fuel has a very important bearing on the condition and results.

In order to obtain good heating gas and the largest yield of ammonia and tar, the gas must be well cooled and well scrubbed. If the gas be not cooled, the quantity of water which it will suck from the washing apparatus is so great as to destroy the value of the gas for heating purposes, while the ammonia, even if it be in the form of fixed salt or sulphate, is carried away, and the more volatile constituents of the tar are carried forward and settle in the conduits.

The system is entirely smokeless, and has the further advantage of taking the sulphurous acid very thoroughly out of the gas.

## NOTICES.

### LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of
THE CHEMICAL TRADE JOURNAL
From
MR. JOHN HEYWOOD,
2, Amen Corner,
Paternoster Row, E.C.,
On usual trade terms.

### FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed* Money Order is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

### *ANSWERS TO CORRESPONDENTS.*

W. E. F.—They have been sent on.
J. M. P.—We will investigate the source of error.
E. M. F.—It is in very good demand.
J. C.—Try their London agents.
L. P.—The idea seems practicable.
J. C. O.—The change has been noted.

## Trade Notes.

Tips for Traders.—Soap and candle making machinery is wanted at Alexandria; so are brick and cement making machines.—Cotton ginning machines and presses are wanted in Paraguay; also stills for distilling sugar cane and orange leaves.—Ramie decorticating machines.—Agricultural machinery in general.—An appeal for such machinery and apparatus has been made by the *Revue du Paraguay* to the manufacturers and makers' representatives of such implements.

Egyptian Industries.—In addition to the making of tiles, bricks, and cement, the manufacture of chemical products in Egypt amounts annually to about 8,000 tons of soda, 700 tons of saltpetre, and a quantity of salt. Despite the existence of the raw materials—soda and sand—in almost unlimited quantities, the manufacture of glass has ceased to exist as an industry. The difficulty of competing with the Belgian manufacturers is the chief reason given, but the glass factory established about two years ago near Constantinople has made such progress as to show that this competition is not a hopeless barrier to success.

A Rival in the Stassfurt Trade.—It is reported that the borings recently prosecuted by a Dortmund contractor at Sondershausen, in the Wipper Valley, have revealed extensive layers of potash salts, in no way inferior to the now world renowned deposits at Stassfurt. Should such prove to be the case the population of Sondershausen, numbering about 86,300 persons, will have no lack of employment for many years to come. In addition to taxes, etc., the State will claim 15% of the net profits, and also reserves the right to work on its own account one-fourth of the undertaking.

A Paper Combination.—For more than three months rumours have been rife in New York that a wall paper trust was being formed which was to include all the leading manufacturers in this line in that country, but only recently the combination was perfected. The people in the deal are said to include more than three-fourths of the product of the country. About a dozen companies in all have been engulfed in the State. The corporation has been organized under the laws of the State of New York, to be known as the National Wall Paper Company, with a capital of £2,800,000. common stock and £1,200,000. of debenture stock, and there has been paid to the State Treasurer £3,500. tax on the organization of the company. This company since its organization has been engaged in the purchase of wall paper factories, and has now completed the purchase of about twenty such factories.

Technical Education in Lancashire.—The Technical Instruction Committee of the Lancashire County Council have just issued the syllabus for a series of examinations for eighteen scholarships of £60. each, tenable for three years at Owens College, University College, Liverpool, or other institution providing higher science, art, technical, or commercial instruction, as may be approved by the County Council, for proficiency in science, art, and commercial subjects, and 100 exhibitions of £10. each, tenable for one year at the evening classes of the Owens College, University College, Liverpool, or such other public institution as the committee approves of. The conditions under which the scholarships can be held are that each science, art, and commercial scholar will be required to attend a three years' course of instruction in the subject at the institutions named above. The scholarships are open to students of either sex who are natives of the United Kingdom, or who have resided or whose parents have resided for 12 months immediately preceding within the administrative county of Lancaster.

Polluters of the Irwell and Mersey.—The Mersey and Irwell Joint Committee last week issued the following circular to all the manufacturers who pollute the rivers in the district:—"Dear sir,—On behalf of the Mersey and Irwell Watershed Joint Committee I beg to call your attention to Part III., Section 5, of the Mersey and Irwell Joint Committee Act, 1892, relating to liquid manufacturing pollution, and which enacts that:—'(1.) Every person who causes to fall or flow or knowingly permits to fall or flow or to be carried into any river or stream within the jurisdiction of the Joint Committee any poisonous noxious or polluting liquids which proceed from any manufactory or manufacturing process shall (subject as in this Act mentioned) be deemed to have committed an offence against this Act. (2.) Where any such poisonous noxious or polluting liquid as aforesaid falls or flows or is carried into any river or stream along a channel used constructed or in process of construction at the date of the passing of the Rivers Pollution Prevention Act, 1876, or any new channel constructed in substitution thereof and having its outfall at the same spot for the purpose of conveying such liquid such person causing or knowingly permitting the poisonous noxious or polluting liquid so to fall or flow or to be carried shall not be deemed to have committed an offence against this Act if he shows to the satisfaction of the Court having cognizance of the case that he is using the best practicable and reasonably available means to render harmless the poisonous noxious or polluting liquid so falling or flowing or carried into the river or stream.' The committee hope that you will give your earnest attention to this matter and carry out (if you have not already done so) such means as you may be advised to efficiently treat your waste effluent without delay. A report by Sir Henry Roscoe on this subject (of which a copy has been previously forwarded to you) is well worthy of your careful consideration. I am, dear sir, yours faithfully, John Hibbert, Chairman."

## Market Reports.

### LIVERPOOL OIL AND COLOUR MARKET.

Wednesday.

Oils.—Palm oil continues firm, with a fair demand. Considerable sales of Lagos have been made at £21. 15s. per ton. Bonny and Calabar have been done at £21. per ton transit, to arrive. Oil, though not in very great demand, continues at full prices, and the market is steady. Linseed oil continues at the easier quotations, viz. 19s. to 20s. 6d. per cwt. in export casks. Cottonseed: Liverpo

s still quoted 18s. 6d. per cwt., at which price there is a fair ; American continues at 21s. to 24s. per cwt. In castor oil onds Calcutta is quoted 2$\frac{7}{16}$d., while first pressure French at 2$\frac{11}{16}$d. per lb. Tallow, though showing signs of improve- rly in the week, continues to remain *in statu quo ante.* ommon, is no better in price, but higher grades are firmer. f Turpentine are still on the decline, being now quoted 22s. per which it is steady. Petroleum: American refined, 5d. to cording to quality. Russian, 4⅜d. to 4½d. per gallon.

)URS continue very steady, without any alteration to report. Oxfordshire, common, £10., medium, £12., best, £15.; ire, common, 40s., medium, 50s., best, 60s. Welsh, best, conds, 50s., and common, 18s.; Irish, Devonshire, 40s. ; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Turkish quiet. Devonshire, 50s. to 55s. White lead, , and oxide of zinc unchanged. Venetian red, £6. 10s. to Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: , £6.; medium, £10.; finest, £20.

## REPORT ON MANURE MATERIAL.

arket continues very quiet, and prices tend rather in favour of

are sellers of 75/80% Florida phosphate rock at 8½d. in c.i.f. to U. K., but buyers don't seem inclined to operate at . The quotation for hot-air dried Peace River rock is 7½d. , and nearest value of South Carolina River or land rock is nadian 60/65% is worth about 6½d. per unit, and 80% about ut no important business reported. Continental descriptions anged in value, and there is very little enquiry for them.

g to difficulty in obtaining suitable vessels, business in cargoes Plate bones is about at a standstill. For shipment, Septem- November, the nearest value is £4. 5s., good U. K. port. n grinding bones are still neglected, and present value is not , 12s. 6d. for good parcels; £3. 7s. 6d. to £3. 10s. for inferior. tation for crushed Kurrachee bones for shipment is £4. 2s. 6d. Liverpool, and that for Bombay bone meal £4. 5s., fair quality. On spot there have been sales of fine East Indian eal at £4. 7s. 6d., and of inferior at £4. 2s. 6d. per ton, ex d store respectively. Bone ash cargoes do not find buyers at , 6d , or 70%, Hamburg terms.

e of soda is again rather neglected in the absence of important at port of call, and quotations are rather easier.

ue cargoes of handy size 8s 3d. would have to be taken, and ones probably 8s. 1½d., ordinary quality. June sailings are about 8s. 4½d.; July and August, 8s. 4½d. to 8s. 6d.; and lings 8s. 7½d. to 8s. 10½d., according to position. On spot e of ordinary quality is 8s. 3d. per cwt., and of refined 8s. 6d., e is almost nothing doing.

o not hear of anything of importance in miscellaneous manure , the policy of buyers appearing to be to hold off for the present.

## MISCELLANEOUS CHEMICAL MARKET.

hief feature of the week in the alkali trade is the advance in the bleaching powder. Owing to the large demand for disinfect- poses, stocks have been cleared out, and quotations for delivery ber are now £8. 17s. 6d. nett, per ton f.o.r. at makers' works. soda remains in the same position as heretofore, and spot re:—F.o.b. Tyne, 77%, £11. 15s.; and f.o.b. Liverpool, 74%, ; 70%, £10. 5s.; 60%, £9. 2s. 6d. Cream, 60%, £8. 17s. 6d., lots and upwards. Soda ash in all qualities is in fair demand, es remain at 1$\frac{5}{16}$d. to 1⅜d. per degree f.o.b. Soda crystals, , to £3. 15s. per ton, according to package. Chlorate of potash firmer at 6¾d. per lb. Chlorate of soda still scarce, and . Recovered sulphur firmer at £5. f.o.r. For sulphate of there is still no improvement in demand, and price remains at r ton. Brown acetate of lime in better request at £6. and 10. 15s. per ton, at usual points of delivery. White sugar of her more plentiful and offering at slightly easier rates. Acetate continues steady in price, and little obtainable for early delivery. of ammonia is in better demand, but without material improve- price. Carbolic acid crystals are a little firmer in sympathy e advance of other kinds of tar acids, the demand for which es brisk for early delivery. Acetic acid is selling more freely for prompt and forward delivery. Oxalic acid still lifeless. White powdered arsenic is firm in price at £12. to £12. 5s. f.o.r. Garston, and there is a fair amount of business being done; for forward delivery £12. 10s. is quoted.

## THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron dull but better. Scotch warrants closed at 41s. 11½d. cash. Middlesbrough 40s. 6d. cash, and Hematite 50s. cash. Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s closed at £44. 8s. 9d. cash, and £44. 18s. 9d. to £45. 6s. 3d. three months. Tin rather better: Straits closed at £93. 2s. 6d. to £93. 12s. 6d. cash and three months. Australian, £93 17s. 6d. to £94. 7s. 6d. cash. English ingots, £96. Lead quiet and unchanged: Spanish, £10. 5s. to £10. 6s. 3d.; English, £10. 7s. 6d. to £10. 10s. Silesian spelter, ordinary, £20. 15s. Quicksilver: £6. 7s. 6d., first hands; second hands, unchanged. *Copper shares*: Cape, 1½ to 1⅝; Copiapo, 1$\frac{15}{16}$ to 2$\frac{1}{16}$; Libiola, 3⅜ to 3½; Mason and Barry, 2$\frac{7}{16}$ to 2$\frac{9}{16}$; Rio Tinto, 14$\frac{15}{16}$ to 15$\frac{1}{16}$; Tharsis, 4⅜ to 4½; Namaqua, $\frac{11}{16}$ to $\frac{13}{16}$; Panulcillo, ¼ to ⅜.

GLASGOW, WEDNESDAY.—Market steady, with small business. Scotch done at 42s. seven days; closing with buyers at 41s. 11½d. cash and 42s. 1½d. one month, sellers ask ½d. higher. Middles- brough closes with buyers at 40s. 6d. cash; sellers, 41s. Hematite closes with buyers at 50s. cash; sellers ask 50s. 9d.

WOLVERHAMPTON, WEDNESDAY.—There was a quiet market this afternoon and a small attendance, but pig iron was reported to be maintained in value, and the demand is also fairly good. All mine hot blast, 63s. 6d. to 64s.; common, 39s. to 40s. For some brands in which a Continental business is sometimes done inquiries are more numerous in view of the possibility of some of the Continental ports being closed on account of the cholera. Finished iron in moderate demand at rates unaltered on the week. Coal in good demand.

## TYNE CHEMICAL REPORT.

TUESDAY.

In the chemical market the special feature is the extremely strong demand for bleaching powder, attributable, no doubt, greatly to the cholera scare. Makers now quote, £8. per ton, softwoods, f.o.b. Tyne, nett cash, for October-December, 1892, but appear to have little to sell. The prices of other products remain unaltered.

Bleaching powder, softs, £8. per ton and hards, £8. 15s. per ton; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £5. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton, in 10 ton lots; silicate of soda, 75° Tw. £3. per ton, 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per ton; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 7d. per lb. less 6%; pearl hardening, £3. 10s. per ton nett; pure white sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta crystals, £19. per ton; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; hydrate of barium, £11. per ton.

South Durham salt unchanged at 9s. 6d. to 10s. per ton f.o.b. Tees.

Coals: Trade is quiet; orders for second-class steam being rather scarce. "Best" on the other hand continues in fair demand. Prices unaltered.

## THE LIVERPOOL MINERAL MARKET.

The market has ruled pretty steady during the week, and there is no special feature to note. Manganese: There are no arrivals this week, whilst stocks have been largely drawn upon, and prices have further advanced. Borate, 7d. per lb.; sulphate £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump): There is more offering, and prices are easier. Raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand) continues strong, and prices firm; lump 20s., seconds 16s., and thirds 12s. French chalk: Arrivals continue small, and prices are firm, with good business doing. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump scarce, and brings full prices at 90s. to 95s.; nuts, 70s. to 80s.; whilst finest white sulphate is in demand. "Angel White," No.

1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore freely offered; prices easy; Bilbao, Irish, and Cumberland easier. Santander and manganiferous quiet. Emerystone: Best quality inquired for. No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal: A fair business doing at full figures. Chrome ore steady. Antimony ore and metal quiet; prices better. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. 10s. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese steady, and prices are unchanged. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady; common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) steady; finest quality 22s. to 23s.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, Tuesday.

After quite touching the very low price of £9. 13s. 9d., there have been some signs of a revulsion in sulphate of ammonia, although not by any means very vigorous, and the feeling to-day warrants the higher mark of £9. 15s. to £9. 16s. 3d. Reports of a lower aggregate of nitrate imports, for the year, may have partly induced the improvement in sulphate.

Paraffins continue unchanged and rather dull, but there is a slowly growing inquiry after burning oil at the renewed terms, and lubricating oils are fairly steady at last reduction. Nothing has been done as yet in scale or wax, and makers are at present under a bit of a scare, caused by reports of increased imports from America, by outside refiners, at prices below the convention fixtures as given below.

The general market is quiet, except in bleach which is still scarce. Caustic soda is quieter, under a rumour that there will be a 20s. reduction all round by and by. Bichromates receive rather more of speculative attention in consequence of a whisper that the combined makers are thinking of clapping another penny on the home prices.

Chief prices current are:—Soda crystals, £2. 17s. 6d., nett Tyne; alum in lump, £5. 10s., nett Glasgow; soda ash, 1⅜d., less 2½%, Tyne; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. nett Liverpool; refined alkali, 1⅝d., less 2½% Tyne; bleaching powder, £7. 12s. 6d. nett Tyne; saltcake, 36s. 6d.; borax, English refined, £29., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 6½d., less 5% any port; nitrate of soda, 8s. 4½d. to 8s. 6d.; sulphate of ammonia, £9. 15s. to £9. 16s. 3d. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £14. 10s. less 5% Liverpool; paraffin scale (hard), 2$\frac{15}{16}$d., and soft 2$\frac{5}{16}$d. to 3d. per lb.; paraffin wax, 120°, semi-refined, 3⅝d. to 4d.; paraffin spirit (naphtha), 7d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower); ditto (lubricating), 865°, £3. 5s. to £3. 15s., 885°, £4. 10s. to £6., and 890/895°, £5. to £7. Week's imports of raw sugar at Greenock were 27,879 bags.

# New Companies.

Blende Mining Co., Limited.—This company was registered on the 18th inst., with a capital of £30,000., in £1. shares, to purchase, take on lease, or otherwise acquire, any mines, mining rights, and metalliferous land situate in the United States of America, or elsewhere, and, with a view thereto, to enter into an agreement with Mr. W. B. Jeffrey, and to carry on the business of mine owners, mining engineers, smelters, metallurgists, assayers, goldsmiths, silversmiths, iron and steel manufacturers, engineers, etc. The subscribers are:—

| | Shares. |
|---|---|
| J. E. Huxtable, 14, St. Helen's-place, E.C., solicitor | 1 |
| E. Jennings, 14, St. Helen's-place, E.C., clerk | 1 |
| E. Dakin, 18, Longley-street, Southwark, Park-road, S.E., clerk | 1 |
| W. J. Hill, 14, Ducie-street, Brixton, S.W., clerk | 1 |
| C. J. Hooper, 55, Fairbridge-road, Upper Holloway | 1 |
| A. Bullards, 61, Catlin-street, S.E., clerk | 1 |
| H. A. Harrison, 55, Montpelier-road, Peckham | 1 |

British Fullers' Earth Co., Limited.—This company was registered on the 22nd inst., with a capital of £20,000., in £1. shares, to acquire and take over certain fullers earth works and mines situate at or near Woburn Sands, in the counties of Bedford and Bucks, and the property held therewith, and also certain contracts relating to the supply of fullers earth, and, with a view thereto to enter into an agreement referred to in clause 3 of the articles. The subscribers are:—

| | Shares. |
|---|---|
| A. J. Hunter, 19, Nicholl-square, E.C. | 1 |
| A. A. C. Wing, 24, Arabia-road, Brockley, S.E. | 1 |
| R. Robinson, 15, Meredith-street, Clerkenwell | 1 |
| E. Watts, 16, Water-lane, E.C. | 1 |
| W. R. Richards, 244, Devonshire-road, Honor Oak-road, S.E. | 1 |
| F. C. Temple, Ormonde Club, S.E. | 1 |
| W. Williams, Romsey, Hants | 1 |

Cardiff Candle Manufacturing Co., Limited.—This company was registered on the 22nd inst., with a capital of £10,000., in £1. shares, to adopt and carry into effect an agreement dated August 11, 1892, between Messrs. W. L. Davies, J. E. Davies, and H. Davies, oil refiners and candle makers, of Penarth-road, Cardiff, of the one part, and Mr. H. Rooksby (for the company) of the other part, and to carry on the business of candle, soap, and grease manufacturing, and oil and tallow refining. The subscribers are:—

| | Shares. |
|---|---|
| H. Davies, 32, Penarth-road, Cardiff | 1 |
| J. S. Wyndham, Cardiff, engineer | 1 |
| J. E. Davies, 71, Bute-street, Cardiff | 1 |
| W. L. Davies, Victoria Stores, Penarth Docks | 1 |
| J. Stacey, Llisvane, accountant | 1 |
| F. J. F. Bailey, Cardiff, wholesale stationer | 1 |
| A. M. Bailey, 8, Custom House-street, Cardiff | 1 |

Cardiff Quinine Bitters, Limited.—This company was registered on the 24th inst., with a capital of £5,000., in £10. shares, to carry on the business of manufacturers, importers, exporters, distillers and refiners of quinine bitters, and all kinds of medical, pharmaceutical, chemical, and industrial compounds. The regulations of Table A mainly apply. Registered by Messrs. Smiles, Ollard, and Yates, 15, Bedford Row, W.C.

Coppal Smokeless Powder Co., Limited.—This company was registered on the 18th inst., with a capital of £100., in £1. shares, to carry on the business of manufacturers of nitro-glycerine, dynamite, gun-cotton, detonators, cartridges, fuses, blasting powder, etc. Registered, without articles of association, by Messrs. Edell and Gordon, 4, King-street, Cheapside, E.C. Registered office, 35, Queen Victoria-street, E.C.

Kennedy Storage Battery Co., Limited.—This company was registered on the 24th inst., with a capital of £100,000. in £1. shares, to enter into and carry into effect an agreement expressed to be made between Messrs. Patrick Kennedy and C. J. Diss of the one part and the Company of the other part, to acquire certain letters patent for "Improvements in Secondary or Storage Batteries," and to carry on the business of electricians, electrical contractors, electrical and mechanical engineers, suppliers of electricity and manufacturers of electrical apparatus. The subscribers are:—

| | Shares. |
|---|---|
| W. J. Sutherland, Seaford, Sussex | 1 |
| J. Dunham-Massey, 55, Old Broad-street, E.C. | 1 |
| G. C. A. Kohler, 17, Fenchurch-street, E.C. | 1 |
| H. J. Alfred, 20, Moorgate-street, E.C. | 1 |
| G. M. Gordon, 34, Colby-road, S.E. | 1 |
| W. Simpson, Wivenhoe, Wood Green | 1 |
| L. L. Simpson, 26, Dover-street, W. | 1 |

Wellington Court, Limited.—This company was registered on the 22nd inst., with a capital of £35,000., in £10. shares, to acquire the plot of ground the site of what was formerly called the Duke of Wellington's Riding School and Stables, situate at Albert Gate, Knightsbridge, and to carry on the business of builders and contractors, decorators, stone merchants, brick and tile makers, quarry-masters, lime-burners, timber merchants, hotel-keepers, house and estate agents, etc. The subscribers are:—

| | Shares. |
|---|---|
| T. D. Berry, 1, Halkin-street, S.W., estate agent | 1 |
| C. C. Baker, 1, Gresham Buildings, E.C., accountant | 1 |
| C. W. Cornish, 1, Gresham Buildings, E.C., accountant | 1 |
| H. H. Collins, 61, Old Broad-street, E.C., surveyor | 1 |
| F. E. Collins, 61, Old Broad-street, E.C., architect | 1 |
| H. Ward, 110, Cannon-street, E.C., civil engineer | 1 |
| W. C. E. Webbe, 61, Old Broad-street, E.C., clerk | 1 |

# The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

### APPLICATIONS FOR LETTERS PATENT.

**Automatic Sprinkler.** F. F. Farlow. 14,693. August 15.
**Iodoso-Compounds.** O. Imray. 14,715. August 15.
**Production of Alpha-nitro-Alpha Amido and Alpha-Quinoline Compounds of Alizarine.** O. Imray. 14,717. August 15.
**Storage Batteries.** T. Floyd. 14,719. August 15.

**Storage Batteries.** A. J. Jarman. 14,720. August 15.
**Removing Paint and Varnish.** G. Harper. 14,726. August 15.
**Colouring Matters.** H. E. Newton. 14,728. August 15.
**New Colour Producing Bases and Colours therefrom.** R. G. Williams 14,742. August 16.
**Soldering Aluminium** J. Mandt and H. Huhnholz. 14,787. August 16.
**Manufacture of White Lead and Lead Pigments.** G. D. Coleman. 14,794. August 16.
**Storage Batteries.** E. P. Usher. 14,814. August 16.
**Storage Batteries.** E. P. Usher. 14,815. August 16.
**Evaporating Spent Liquors and Recovering Salts therefrom.** E. Ashworth. 14,835. August 17.
**Concentrating Sulphuric Acid and other Liquids.** I. Levinstein and T. G. Webb. 14,842. August 17.
**Consuming Noxious Gases in Chemical and other Works.** C. B. Lotherington. 14,861. August 17.
**Production of Ozone by means of Phosphorus.** C. R. Poulsen. 14,862. August 17.
**New Chemical Compounds Containing Sulphur.** H. E. Newton. 14,881. August 17.
**Improvements in Paint.** R. Kieffert and H. Thirion. 14,888. August 17.
**Improvements in Cement.** R. Kieffert and H. Thirion. 14,889. August 17.
**Aluminium Solder.** E. Goll and C. Vatcky. 14,910. August 18.
**New Colouring Matters.** H. E. Newton. 14,927. August 18.
**Improvements in the Manufacture of Chlorine.** H. W. Wallis. 14,945. August 18.
**Improvements in the Manufacture of Chlorine.** H. W. Wallis. 14,946. August 18.
**Dyestuffs from Amidonaphthol-Sulphonic Acids.** G. Pitt. 14,993. Aug. 19.
**Extracting Grease from Wool with Benzol.** J. Trent and G. Henderson. 15,012. August 19.
**Dyestuffs.** H. E. Newton. 15,056. August 20.
**Returning the Water of Condensation into Boilers.** L. Johnstone. 15,062. August 20.
**Manufacture of Aluminium Fluoride.** L. Grabau. 15,083. August 20.

# Gazette Notices.

## PARTNERSHIPS DISSOLVED.

S. LA BUA AND A. G. AARON, under the style of the Ferro-Prussiate Paper Co., Park-street, Camden-town, paper manufacturers; as far as regards A. G. Aaron.

SIMPSON AND HILL, Aldersgate-buildings, E.C., manufacturers of electrical, optical, and mechanical apparatus.

## BANKRUPTCY ACTS, 1883 and 1890.

### Adjudications.

STEVENS, JAMES, King's Norton and Birmingham, metal broker.

SCRYMGEOUR, ROBERT BISSETT, St. Helens, near Liverpool, iron and hardware merchant.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending August 20th.*

**Acetic Acid—**
Holland, 99 pkgs. J. Owen
Holland, 144 A. & M. Zimmermann

**Acetone—**
Holland, 10 pkgs. A. & M. Zimmermann

**Alkali—**
France, 205 c. P. Hecker & Co.
Belgium, 500 Knight, Hill, & Co.

**Alum—**
Holland, 14 pkgs. Ohlenschlager Bros.

**Antimony—**
Australia, 19 t. Bank of N. S. Wales
France, 10 Vivian, Younger, & Co.
Syra, 27 Pillow, Jones, & Co.
Australia, 8 H. Bath & Sons

**Asbestos—**
Germany, £35 Phillipps & Graves
Italy, 15 M. D. Co.

**Barytes—**
Belgium, 42 cks. Hemingway & Co.
" 33 Burrell & Co.
" 97 W. Harrison & Co.
" 42 N. J. Fenner & Co.
" 20 Stobbs, Wilson, & Co.

**Benzol—**
Holland, 10 pkgs. J. Owen

**Caoutchouc—**
E. Indies, 74 c. Ross & Deering
Rangoon, 132 J. H. & G. Scovell
A. Turkey, 43 L. & I. D. Jt Co.
Madagascar, 20 "
Zanzibar, 165 Clarke & Smith
U. States, 204 J. Knill & Co.
E. Indies, 33 Ralli Bros.
" 34 E. Barber & Co.
" 73 L. & I. D. Jt. Co.
Portugal, 12 S. Figgis & Co.
" 30 Elkan & Co.
Singapore, 205 Huttenbach & Co.
Germany, 25 W. M. Smith & Sons
Portugal, 90 Lewis & Peat
Zanzibar, 21 "
" 58 L. & I. D. Jt. Co.
Penang, 33 pkgs. "
Portugal, 16 W. M. Smith & Sons
Tamatave, 105 L. & I. D. Jt. Co.
Germany, 24 J. E. Wilson
E. Indies, 34 L. & I. D. Jt. Co.
Penang, 55 T. Merry & Sons
U. States, 4 J. Walker & Co.

**Caustic Potash—**
France, 21 drs. Spies Bros & Co.
" 115 c. H. Gray

**Chemicals** *(otherwise undescribed)*
Germany, 25 pkgs. T. H. Lee
" 18 Phillipps & Graves
" 45 A. & M. Zimmermann
Holland, £32 Neale & Wilkinson
" 10 Phillipps & Graves
" 10 G. Meyer & Co.
Germany, 7 L. & I. D. Jt. Co.
" 25 Becker & Ulrich
" 11 Hernu, Peron, & Co.
" 4 C. Atkins & Nisbet
U. States, 5 Major & Field
Germany, 60 T. H Lee
Holland, 15 Carey & Sons

**Cream of Tartar—**
France, 10 pkgs. W. C. Bacon & Co.
" 6 Smith, Abbott, & Co.
" 2 J. L. Lyon & Co.
" 5 J. Puddy & Co.
" 8 B. & F. Wf. Co, Ltd.
Holland, 30 Middleton & Co.

**Dyestuffs—**
**Aniline**
Belgium, 1 pkg. W. Allison & Co.
Holland, 10 R. Baelz & Co.
" 10 J. Owen
**Argols**
Italy, 1,043 pkgs. B. Jacob & Sons
" 44 Thames S. T. & L. Co., Ltd.
**Cochineal**
Canaries, 17 W. M. Smith & Sons
**Cutch**
Rangoon, 61 pkgs. J. H. & G. Scovell
E. Indies, 500 Wallace Bros.
" 750 Wedekind & Co.
Rangoon, 200 L. & I. D. Jt. Co.
Singapore, 320 J. Swire & Sons
**Extracts**
Denmark, 32 pkgs. Sharland & Co.
Belgium, 25 Leach & Co.
France, 30 T. H. Lee
**Gambier**
Singapore, 258 pkgs. Beresford & Co.
" 82 Brinkmann & Co.
" 2,842 L. & I. D. Jt. Co.
**Indigo**
E. Indies, 78 chts. L. & I. D. Jt. Co.
Germany, 9 cs. T. H. Lee
**Orchella**
Portugal, 140 pkgs. Prop. Bull Wf.
" 44 W. Burton & Sons
**Sumac**
Italy, 500 pkgs. J. Graves
" 250 J. Kitchin, Ld.
" 200 Union L. Co., Ltd.
" 200 Bailey & Leetham
" 500 J. Graves
**Tanners' Bark**
U. States, 3 t. Beresford & Co.
Belgium, 40 Leach & Co.
Germany, 12 Beresford & Co.
Natal, 41 Hicks, Nash, & Co.
Adelaide, 48½ Beresford & Co.
U. States, 4 Culverwell, Brooks, & Co.
Belgium, 9 Arnati & Harrison
Natal, 50 A. & W. Nesbitt

**Dyestuffs** *(otherwise undescribed)*
U. States, 8 pkgs. W. W. Young

**Farina—**
Holland, 160 pkgs. Seward Bros.
" 286 C. F. Webster & Co.

**Glucose—**
U. States, 200 pkgs. 1,200 c. Fuerst Bros.
France, 100 100 c. L. Norman & Co.
" 180 180 Barrett, Tagant, & Co.
U. States, 260 260 "
" 20 110 Prop. Chmbln's. Wf.
" 100 581 Prop. Scott's Wf.
" 80 483 Page, Son, & East
" 75 412 Pillow, Jones, & Co.
" 390 390 R. G. Hall & Co.
" 175 1,050 L. Sutro & Co.
" 250 312 L. & I. D. Jt. Co.
France, 150 150 L. Norman & Co.
" 250 250 Trier, Meyer, & Co.
" 180 180 Barrett, Tagant, & Co.
" 120 120 T. Barber & Co.
U. States, 250 312 L. & I. D. Jt. Co.

**Glycerine—**
Holland, £700 Spies Bros. & Co.
" 125 J. Owen
Germany, 65 T. H. Lee
" 35 F. Boehm
" 160 H. Lambert
" 35 T. Palmer
France, 300 N. S. S. Co., Ld.
Holland, 23 J. Owen

**Guano—**
Peru, 1,339 t. Anglo-Contl. G. Wks.

**Manganese—**
Germany, 2 t. C. Hof & Co.
Holland, 19 pkgs. G. Rahn & Co.

**Manure—**
Canada, 100 t. A Hunter & Co.
Falkland Is., 22 Anning & Cobb
France, 60 £90 J. Burnett & Sons

**Mica—**
E. Indies, £289 W. M. Smith & Sons
Ceylon, 45 "
Adelaide, 390 Horne & Co.
W. Australia, 97 Dalgety & Co.

**Ochre—**
France, 17 cks. C. S. Lovell
" 42 C. F. Gerhardt
" 44 W. Harrison & Co.

**Paraffin Wax—**
U. States, 183 brls. H. Hill & Sons
" 5 cs. H. W. Peabody & Co.
Germany, 56 Grosscurth & Luboldt
Rangoon, 1,200 cs. H. Hill & Sons
U. States, 2,500 J H. Usmar & Co.

**Painters' Colours—**
Germany, 2 pkgs. L. & I. D. Jt. Co.
" 16 T. H. Lee
" 18 Phillipps & Graves
Holland, 6 "
Belgium, 10 T. Palmer
France, 36 Flageollet & Co.
" 15 F. Corfield Smith
Germany, 4 cks. Wilkinson, Heywood, & Co.
U. States, 6 cs. J. Watson & Co.
Italy, 33 drums. P. C. Smith
U. States, 25 brls. L. & I. D. Jt. Co.
Belgium, 1 Union L. Co., Ltd.
U. States, 2 Prop. Scotts Wf.
Germany, 1 T. H. Lee
Belgium, 15 pkgs. T. Palmer
Germany, 1 T. H. Lee

**Phosphate Rock—**
Belgium, 130 t. Anglo-Contl. G. Wks.
Canada, 95 A. Hunter & Co.
Belgium, 160 Lawes Manure Co., Ld.

**Plumbago—**
Ceylon, 106 brls. J. Cooper
" 70 Doulton & Co.
Germany, 1 cs. J. Elingues
Ceylon, 67 Beresford & Co.
Germany, 28 cks. T. H. Lee

**Potash—**
France, 100 c. Petri Bros.

**Potassium Bromide—**
Germany, 25 pkgs. Becker & Ulrich

**Potassium Permanganate—**
Holland, 15 pkgs. F. Boehm
" 15 T. Palmer

**Potassium Sulphate—**
France, 88 pkgs. Weatherley, Mead, & Co.
E. Indies, 152 G. H. Wilson & Sons

**Rosin—**
U. States, 800 brls. Moore & Hole
" 750 J. Knight & Sons
" 2,000 G. Nutter & Co.

**Saltpetre—**
Chili, 13,908 bgs. W. Montgomery & Co.
Germany, 70 cks. P. Hecker & Co.
E. Indies, 2,550 Ralli Bros.
Germany, 23 Craven & Co.
" 20 T. Merry & Son
E. Indies, 581 C. Wimble & Co.

**Sodium Acetate—**
Belgium, 17 pkgs. Leach & Co.
France, 13 H. Lorenz

**Sodium Silicate—**
Holland, 25 pkgs. Spies Bros. & Co.

**Stearine—**
Belgium, 38 bgs. H. Hill & Sons
France, 185 Beresford & Co.

**Sulphur—**
Italy, 102 t. G. Boor & Co.

**Sulphur Chloride—**
Germany, 10 pkgs. Typke & King

**Tallow—**
Sydney, 400 cks. Beresford & Co.
" 45 Hicks, Nash, & Co.
" 192 J. Morrison & Co.
" 30 Coml. Banking Co. of Sydney
" 249 H. Hill & Sons
U. States, 100 W. Balchin
Sydney, 530 J. Greig
" 27 L. & I. Dk. Co.
" 70 Elkan & Co.
" 120 Pillow, Jones, & Co.
" 307 A. G. Anderson
Falkland Is., 558 Anning & Cobb
France, 2 Dyster, Nalder, & Co.
N. Zealand, 73 Nelson Bros.
" 710 N. Z. L. & M. A. Co.
" 12 R. Brooks & Co.
" 58 Cuthbert & Hall
" 211 Low, Sons, & Bedford
Falkland Is., 15 Dyster, Nalder, & Co.
N. Russia, 25 Leach & Co.
Sydney, 69 "
" 150 J. Owen & Co.
" 45 Brown & Elmslie
" 119 Kaul & Haenlein
" 144 Anning & Cobb
N. Zealand, 60 Brown & Elmslie
" 775 Gear Meat Presv. Co.
" 92 Goldsbrough, Mort, & Co.
Sydney, 37 Baxter & Hoare
" 22 J. Morrison & Co.
" 64 Aust. Meat Co.
Belgium, 69 E. W. Fischel & Co.

**Tar—**
N. Russia, 450 brls. Hoare, Marr, & Co.
" 565 Linck, Moeller, & Co.
" 1,250 W. F. Malcolm & Co.
France, 5 pkgs. Hernu, Peron, & Co.

**Tartaric Acid—**
Holland, 13 pkgs. B. & F. Wf. Co., Ltd.

**Tin Oxide—**
Germany, 5 cks. H. Lambert

**Turpentine—**
Savannah, 4,174 brls. Nickoll & Knight
" 722 Prod. Brokers Co., Ld.
N. Russia, 257 Wilson & Berg

**Ultramarine—**
Belgium, 10 pkgs. 6 cks. Leach & Co.
" 4 W. Harrison & Co.
Holland, 9 Haeffner, Hilpert, & Co.

**Varnish—**
France, 12 pkgs. Flageollet & Co.
Germany, 2 Stobbs, Wilson, & Co.
" 5 H. Lambert
U. States, 67 Beck & Pollitzer

**White Lead—**
Belgium, 24 cks. Leach & Co.
Germany, 10 Randall Bros.
" 30 Elkan & Co.
" 26 N. J. Fenner & Co.
" 42 Burrell & Co.
France, 45 W. Harrison & Co.
Germany, 14 H. Lambert
" 9 Petri Bros.
" 16 P. Jantzen
Holland, 59 Phillipps & Graves
" 9 T. T. Creed
" 48 T. & W. Farmiloe
" 37 A. & M. Zimmermann

**Zinc Oxide—**
U. States, 100 brls. M. Ashby, Ltd.
Holland, 90 "
Germany, 25 cks. G. Matton
Sydney, 25 pkgs. M. Ashby, Ld.

## LIVERPOOL.

*Week ending August 20th.*

**Alkali—**
Antwerp, 10 cks. J. T. Fletcher & Co.

**Alum—**
Rotterdam, 1 ck.

**Barytes—**
Antwerp, 60 cks.

**Barytes Sulphate—**
Ghent, 1 ck.

**Boracic Acid—**
Leghorn, 12 cks. Pickford & Co.
" 40

**Borax—**
San Francisco, 922 sks.

**Chemicals** (*otherwise undescribed*)
Rotterdam, 7 cs.

**Cochineal—**
Gd. Canary, 10 bgs. Kolp & Co.
" 11 Duranty & Son

**Colours—**
Hamburg, 3 cks.
Antwerp, 11 brls. J. Fletcher & Co.
Rotterdam, 18 cs. 23

**Cream of Tartar—**
Barcelona, 5 hds. Sachse & Klemm
Tarragona, 5 cks.

**Dyestuffs—**
**Extracts**
Bordeaux, 25 cks.
Marseilles, 10 brls.
Norfolk. Va., 54 W. Walker & Son
**Myrabolams**
Bombay, 400 bgs. D. Sassoon & Co.
" 5,216
**Saffron**
Bombay, 1 cs. Okell & Owen
Valencia, 2
**Sumac**
Palermo, 1,240 bgs.
**Valonia**
Smyrna, 161 bgs. Schweder & Co.
" 100 t. Essayan, Shalum & Co.
" 90
Marathonin, 186 Papayanni & Erema

**Dyestuffs** (*otherwise undescribed*)
New York, 20 cs.

**Glucose—**
New York, 399 brls.

**Glycerine—**
Bordeaux, 20 cks.
Rotterdam, 20 cs. 2 8 tins. 5 cbys.

**Gum—**
Sierra Leone, 78 brls.

**Iodine—**
Valparaiso, 96 brls. Vorwerk, Gebr & Co.

**Lime—**
New York, 1,377 bgs.
Antwerp, 15 brls. J. T. Fletcher Co.

**Manganese—**
Coquimbo, 1,696 t.

**Ochre—**
Marseilles, 4 cks.
Rouen, 22 R. J. Francis & Co.

**Paint—**
New York, 5 brls. E. W. Fyfie, Son, & Co.

**Phosphate—**
Aruba, 360 t.

**Phosphate Rock—**
Beaufort, S. C., 2,909 t. J. Adger & Co.

**Plumbago—**
Hamburg, 45 brls.

**Potash—**
Rotterdam, 2 cks.

**Potassium Carbonate—**
Hamburg, 11 cks.

**Pyrites—**
Huelva, 1,503 t. Tennants & Co.
" 4,835 Matheson & Co.

**Rosin—**
New York, 2,001 brls.
Savannah, 2,735
Baltimore, 11
Hamburg, 5 cs.

**Rosin Oil—**
Norfolk, Va., 500 brls.

**Saltpetre—**
Calcutta, 339 bgs.

**Soap—**
Philadelphia, 900 bxs. 50 crts. 3 cs.
Smyrna, 1
Hamburg, 2
Marseilles, 8 cs. Allan Bros. & Co.
In transit, 20

**Soapstone—**
Bordeaux, 500 bgs. G. G. Blackwell
Genoa, 200 "

**Soda—**
Rotterdam, 15 cks.

**Stearine—**
Boston, 1 bx. 150 tcs.
Antwerp, 18 bgs.

**Sulphur—**
Huelva, 1,100 t. Matheson & Co.
Catania, 325 bgs.

**Tallow—**
New York, 200 hds. 160 tcs.
Boston, 42
San Francisco, 633 brls.
Philadelphia, 25 cks. Richardson, Spence & Co.
Buenos Ayres, 274 hds.

**Tartar—**
Bordeaux, 15 cks.
Rouen, 34 cks. R. J. Francis & Co.

**Tartaric Acid—**
Rotterdam, 23 cks.

**Tincal—**
Calcutta, 285 bgs.

**Turpentine—**
Savannah, 945 brls.

**Ultramarine—**
Hamburg, 30 cs.

**Varnish—**
Havre, 1 pkg. Cunard S. S. Co., Ltd.

**Verdigris—**
Bordeaux, 4 cks.

**White Lead—**
Rotterdam, 14 cks.
Ghent, 18 cks. J. T. Fletcher & Co.

**Zinc Ashes—**
New York, 20 brls. R. Crooks & Co.

**Zinc Oxide—**
Antwerp, 165 brls. 6 cks.
Rotterdam, 75 cs.

**Zinc White—**
Rotterdam, 10 cks. T. & H. Marcu

## HULL.

*Week ending August 20th.*

**Asbestos—**
Rotterdam, 1 cs. G. Lawson & Sons
Reval, 111 bgs.

**Barytes—**
Antwerp, 12 cks. Bailey & Leetham
Bremen, 45 H. F. Pudsey
" 21

**Caoutchouc—**
Hamburg, 9 cs. 2 bls. C. M. Lofthouse & Co.

**Chemicals** (*otherwise undescribed*)
Stettin, 6 cks. Wilson, Sons, & Co., Ld.
Bremen, 1 cs. 3 botls. Veltmann & Co.
" 2 kgs. Storry, Smithson, & Co.
Hamburg, 6 cks. 4 cs. Wilson, Sons, & Co., Ld.
Antwerp, 55 pks. "
Dunkirk, 12 cks.

**Colours—**
Rotterdam, 9 brls. 2 cs. Hutchinson & Son
" 30 cks. 5 pks. G. Lawson & Sons
Ghent, 29
Flushing, 22 87 1 cs. Zeeland S. S. Co.
" 6 105 4 "
Drontheim, 77 tins. Wilson, Sons, & Co., Ld.
Rotterdam, 7 cks. Blundell, Spence & Co.
" 10 19 pkgs. 38 pks. W. & C. L. Ringrose
Antwerp, 50 Wilson, Sons, & Co., Ld.
" 86
Dunkirk, 1 cs. Wilson, Sons, & Co., Ld.

**Dyestuffs—**
**Alizarine**
Rotterdam, 33 brls. 3 cs. Hutchinson & Son
" 35 cks. W. & C. L. Ringrose
**Indigo**
Amsterdam, 1 ck. W. & C. L. Rin
**Valonia**
Smyrna, 460 t.

**Farina—**
Ghent, 415 pks. Wilson, So Co.

**Glucose—**
Rotterdam, 20 kgs. 50 bgs. Hutch &
Dunkirk, 50 Wilson, So Co.

**Paint—**
Boston, 20 cs. Wilson, So Co.
New York, 25 "

**Phosphate—**
Ghent, 150 t.

**Phosphate Rock—**
Fernandina, 1,985 t. Hammond, &
Pt. Royal, 1,670 "

**Pitch—**
Ghent, 60 brls. Wilson, Son Co.
Amsterdam, 13 cks. H. F. Pu

**Tallow—**
Copenhagen, 1 pkg.
New York, 110 hds. Wilson, So Co.
Dunkirk, 1 ck. "

**Tartaric Acid—**
Rotterdam, 7 cks. Hutchinson &

**Ultramarine—**
Rotterdam, 3 cks. 5 cs. Tudor &
" 10 cs. Storry, Witty &
" 9 cks. Hutchinson &

**White Lead—**
Rotterdam, 2 cks. Hutchinson &
" 13 Storry, Witty &
" 14 Leech, Neal &
" 20
Antwerp, 10 Bailey & Lee
Rotterdam, 18 A. Sanderson &
" 19 Sissons Bros. &

## GLASGOW.

*Week ending August 25th.*

**Acetate of Lime—**
New York, 170 bgs.

**Barytes Sulphate—**
Antwerp, 100 bgs.

**Cobalt Ore—**
Noumea, 4½ t. Nickel

**Colours—**
Rotterdam, 3 cks. J. Rankin

**Cream of Tartar—**
Rotterdam, 15 cks.

**Dyestuffs—**
**Alizarine**
Rotterdam, 45 cks. J. Rankin
" 1 csk. "
" 12 cks. 1 cs.
**Aniline**
Rotterdam, 2 cks. J. Rankin
" 3 2 cs.
**Extracts**
Antwerp, 13 cks.
**Turmeric**
Calcutta, 300 bgs.

**Glucose—**
New York, 298 brls.
Rotterdam, 12 cks.

**Pitch—**
Antwerp, 50 cks.

**Potash—**
Rouen, 2 cks.

**Prussiate of Potash—**
Hamburg, 40 cks.

**Pyrites—**
Huelva, 1,677 t. Tharsis Su & Copper Co

**Rosin—**
New York, 1,752 brls.

**Soap—**
New York, 350 bxs.

**Sodium Nitrate—**
France, 8,415 bgs. Tho Aikman

**Waste Salt—**
Hamburg, 185 cks.

**White Lead—**
Rotterdam, 51 cks.

**Zinc Oxide—**
New York, 10 brls.

## TYNE.

*Week ending August 20th.*

**Barytes—**
Antwerp, 81 cks. Tyne S. S. Co.
**Colours—**
Rotterdam, 3 cs. 4 cks. Tyne S. S. Co.
**Glycerine—**
Rotterdam, 5 cs. Tyne S. S. Co.
**Limestone—**
Antwerp, 4 cs. 1 crt. Tyne S. S. Co.
**Phosphate—**
Antwerp, 260 t.
**Pyrites—**
Huelva, 2,754 t. Scott Bros.
**Salt—**
Harburg, 310 t.
**Sulphur Ore—**
Pomaron, 1,200 t. Mason and Barry
**Superphosphate—**
Antwerp, 150 bgs. Tyne S. S. Co.
**Ultramarine—**
Rotterdam, 2 cks. Tyne S. S. Co.
**White Lead—**
Ghent, 20 cks. Tyne S. S. Co.
**Zinc Oxide—**
Antwerp, 40 brls. Tyne S. S. Co.

## GOOLE.

*Week ending August 10th.*

**Alizarine—**
Rotterdam, 124 pkgs.
**Alum—**
Rotterdam, 34 cks.
**Antimony—**
Boulogne, 1 ck.
**Dyestuffs** (*otherwise undescribed*)
Boulogne, 25 cks. 2 cs. 4 pkgs.
**Extracts—**
Rouen, 50 cks.
**Glucose—**
Calais, 200 bgs.
**Potash—**
Dunkirk, 39 dms. 12 cks.
Calais, 56 21
**Pyrites—**
Seville, 1,040 t.
**Saltpetre—**
Rotterdam, 100 bgs.
Hamburg, 12 brls.
**Sulphur Chloride—**
Rotterdam, 36 pkgs.
**Tartaric Acid—**
Rotterdam, 2 cks.
**Waste Salt—**
Hamburg, 673 t. 481 cks.
**Zinc Oxide—**
Antwerp, 20 brls.

## GRIMSBY.

*Week ending August 13th.*

**Chemicals** (*otherwise undescribed*)
Hamburg, 20 pkgs.
**Extracts—**
Dieppe, 25 cks.
**Farina—**
Hamburg, 263 bgs.
**Size—**
Antwerp, 3 cks.
**Zinc Ashes—**
Antwerp, 17 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending August 24th.*

**Alkali—**
Tientsin, 15 c. £5
Sydney, 5 t. 55
**Alum Cake—**
Calcutta, 35 t. 1 c. £123
Melbourne, 10 17 32
**Ammonia—**
Melbourne, 2 t. 12 c. £127
Rosario, 15 drs. 11
**Ammonium Carbonate—**
Dunkirk, 18 c. £22
M. Video, 5 8
**Ammonium Chloride—**
Cologne, 15 cks. £81
Constantinople, 5 t. 157
Shanghai, 1 36
**Ammonium Sulphate—**
Hamburg, 101 t. 12 c. £1,100
Demerara, 167 14 1,710
**Amorphous Phosphorus—**
Vladivostock, 4 cs. £53
**Arsenic—**
Boston, 25 t. £275
**Bisulphide of Carbon—**
Antwerp, 4 t. 18 c. £80
**Borax—**
Rangoon, 2 cs. £22
Haringen, 6 9
Natal, 2 t. 62
Gibraltar, 8 kgs. 13
**Carbolic Acid—**
Napier, 120 drms. £105
Calcutta, 13 cks. 54
Hamburg, 120 2 drs. 1 t. 825
Halifax, 6 cs. 18
St. Petersburg, 100 brls. 140
Rotterdam, 45 126
Malta, 10 c. 13
**Caustic Potash—**
Napier, 20 drs. £31
Auckland, 4 c. 8
Sydney, 1 t. 2 21
**Caustic Soda—**
Cape Town, 14 c. £23
Geelong, 4 t. 19 55
E. London, 3 4 125
Wellington, 15 36
Auckland, 10 14 117
Melbourne, 10 9 146
Algoa Bay, 1 39
**Chemicals** (*otherwise undescribed*)
Napier, 12 c. £42
Bombay, 12 pkgs. 63
Auckland, 3 kgs. 13
Calcutta, 2 cks. 42
Natal, 7 4 cs. 29
Boulogne, 7 137
Adelaide, 10 52
Sydney, 9 40 2 118
Hobart, 1 29
**Citric Acid—**
Amsterdam, 5 c. £39
Adelaide, 5 43
Melbourne, 1 t. 15 215
Marseilles, 4 30
Genoa, 10 75
Antwerp, 3 25
Kurrachee, 1 cs. 23
Hamburg, 1 1 178
Sydney, 1 8
B. Ayres, 1 40 kgs. 446
Cologne, 5 39
**Coal Products—**
**Alizarine**
Bombay, 39 kgs. £250
**Aniline**
Salonica, 1 cs. £13
**Aniline Oil**
Rotterdam, 34 drs. £1,250
Genoa, 10 400
**Aniline Salts**
Leghorn, 6 rns. £50
**Anthracene**
Dusseldorf, 264 cks. £2,344
Rotterdam, 121 505
**Benzol**
Rotterdam, 130 cks. 22 pkgs. £837
Treport, 12 150
**Creosote Oil**
Treport, 10 brls. £25
**Naphtha**
Melbourne, 15 drs. £15
Calais, 26 brls. 70
Adelaide, 38 crts. 44
**Naphthalene**
Hamburg, 18 cks. £156
**Paraffin Wax**
Launceston, 20 bgs. £82
Vladivostock, 87 drs. 86
Auckland, 3 sks. 137
**Pitch**
Havre, 401 t. £522
St. John's, N.B., 100 brls. 217
Galatz, 50 rnlts. 15
Terneuzen, 175 253
Antwerp, 888 1,140
**Pyridine Bases**
Rotterdam, 12 cks. £101
**Tar**
Eleinore, 250 brls. £123
Calcutta, 100 rnlts. 45
Danzig, 250 100
Galatz, 50 24
Natal, 60 drs. 10
**Copper Sulphate—**
Amsterdam, 5 t. £76
**Corrosive Sublimate—**
Hamburg, 15 c. £72
St. Petersburg, 12 cs. 307
**Cream of Tartar—**
Melbourne, 10 c. £45
Adelaide, 1 t. 90
Townsville, 5 24
Brisbane, 1 5 107
Auckland, 1 5
Cape Town, 5 22
Townsville, 10 43
Natal, 2 cs. 10
Mossel Bay, 2 11
E. London, 2 kgs. 9
Napier, 2 9
Wellington, 1 96
**Disinfectants—**
Madras, 30 cks. 316 pkgs. £412
Calcutta, 100 kgs. 17 36
Colombo, 117 56
Bremen, 5 cks. 17
Hamburg, 130 650
Cape Town, 10 c. 28
**Flowers of Sulphur—**
Napier, 1 t. 10 c. £13
Algoa Bay, 2 5 24 kgs. 42
**Glycerine—**
Melbourne, 10 c. £21
B. Ayres, 99 cs. 181
Shanghai, 17 56
Montreal, 4 t. 16 180
**Guano—**
St. Kitts, 20 t. £200
Hamburg, 30 150
**Manure—**
Dunedin, 95 t. £367
Memel, 155 449
Auckland, 222 893
Wellington, 150 600
Venice, 10 70
Treport, 158 18 c. 1,170
Riga, 478 9 1,265
Gothenburg, 370 6 1,141
**Potassium Bichromate—**
Calcutta, 10 c. £21
**Potassium Bromide—**
Hamburg, 20 cs. £104
**Potassium Chlorate—**
Odessa, 1 t. 5 c. £76
Vladivostock, 10 28
Brussels, 10 30
**Potassium Cyanide—**
Shanghai, 2 cs. £22
Port Elizabeth, 5 53
**Salt Cake—**
Antwerp, 150 t. £263
**Saltpetre—**
Napier, 5 c. £6
Adelaide, 1 t. 5 27
Gothenburg, 1 21
Newcastle, 1 22
Melbourne, 1 22
Oporto, 4 16 97
Lisbon, 7 7 149
Sydney, 10 13
Rio de Janeiro, 2 4 49
Huelva, 3 15 78
Syra, 3 8 70
**Sheep Dip—**
E. London, 10 cs. £28
Wellington, 10 cks. 30
Adelaide, 100 300
Algoa Bay, 50 150
Natal, 1 18 129
Wellington, 10 cks. 750 drs. 475
**Soda—**
Brisbane, 1 t. £7
Cape Town, 3 5 c 11
Sydney, 2 15
**Soda Ash—**
Melbourne, 25 t. 3 c. £167
**Soda Crystals—**
Algoa Bay, 3 t. 5 c. £13
Cape Town, 5 8 20
Barbadoes, 16 3
Newcastle, 5 17
Gibraltar, 2 2 9
Auckland, 1 3 4
Hong Kong, 10 9
**Sodium Bicarbonate—**
Auckland, 2 t. £13
Cape Town, 5 c. 2
Townsville, 5 2
Massowah, 3 1 23
Kingston, Jam., 1 8
**Sulphur Precipitate—**
New York, 1 ck. £12
**Sulphuric Acid—**
Algoa Bay, 4 t. 16
Natal, 30 cs. 33
Pt. Elizabeth, 100 drs. £140
**Superphosphate—**
Barbadoes, 300 t. £1,350
Mauritius, 201 9 c. 860
Riga, 760 9 2,281
**Tartaric Acid—**
Adelaide, 5 c. £27
Melbourne, 18 108
Auckland, 2 36
Sydney, 5 20
B. Ayres, 1 t. 103
E. London, 1 6
Napier, 4 21
Wellington, 8 42

## LIVERPOOL.

*Week ending August 24th.*

**Acetic Acid—**
Lisbon, 1 t. 2 c. £15
Santos, 19 3 q. 19
Rio de Janeiro, 19 3 17
**Alum—**
Havana, 13 cks. £30
Penang, 17 c. 5
Calcutta, 19 t. 13 98
Bombay, 9 5 48
Bourgas, 1 7 7
Lisbon, 8 9 44
Galatz, 4 24
Varna, 5 6 28
Patras, 1 8 7
Volo, 2 3 11
Halifax, 2 14 14
Syra, 2 15 13
Alexandria, 4 10 27
**Alum Cake—**
Melbourne, 5 t. 1 c. 3 q. £15
**Alizarine—**
Lisbon, 1 ck.
**Ammonium Carbonate—**
Halifax, 5 c. £8
Rotterdam, 2 t. 1 1 q. 68
Genoa, 25 kgs. 10 49
**Ammonium Chloride—**
Ancona, 7 c. 1 q. £12
Constantinople, 1 t. 2 36
Durazys, 12 1 20

Trieste, 2 66
Antwerp, 19 3 21
Syra, 4 2 8
Marseilles, 1 10 49
Genoa, 6 10
Hamburg, 53 7 2 580
Barcelona, 3 3 2 104
Bombay, 2 11 82
Galatz, 10 17

**Ammonium Sulphate—**
Gr. Canary, 41 t. 9 c. 3 q. £414
New York, 51 5 2 502
Leghorn, 10 9 104
Antwerp, 90 17 1 108
Valencia, 221 1 3 2,148

**Barium Sulphocyanide—**
Rio de Janeiro, 3 c. £9

**Barytes Chlorate—**
Rotterdam, 10 c. £40

**Bleaching Powder—**
Baltimore, 276 cks.
Boston, 1,200
Calcutta, 175 cs.
Genoa, 134
Ghent, 69
Terneuzen, 29
Bombay, 8
Naples, 8
New York, 247
Odessa, 23
Oporto, 50 brls.
Philadelphia, 30
Santander, 20

**Boracic Acid—**
Calcutta, 5 cks. £42

**Borate of Soda—**
Rotterdam, 6 cks.

**Borax—**
Cardenas, 1 ck. £7
Sydney, 10 kgs. 16
Rosario, 9 c. 1 q. 15
Halifax, 10 15
Alexandria, 12 19

**Carbolic Acid—**
Constantinople, 7 c. 2 q. £21
Hamburg, 2 t. 15 142
Alexandria, 4 3 25
Rotterdam, 5 1 2 250

**Caustic Potash—**
Chicago, 4 t. 12 c. £188
Para, 10 11
New York, 10 322

**Caustic Soda—**
Alexandria, 15 dms.
Alicante, 30
Amsterdam, 40 10 brls. 80 kgs.
Antonina, 15 10
Baltimore, 520 135
Barcelona, 180
Bilbao, 28 2 cks.
Beyrout, 5
Bombay, 54 12 kgs.
Boston, 300
Batavia, 45
Brisbane, 70
B. Ayres, 10
Calcutta, 287
Chicago, 100
Corral, 25
East St. Louis, 50
Hamburg, 90 5
Hiogo, 100
Leghorn, 35
Lisbon, 115
Malaga, 106
New York, 450
Odessa, 32
Oporto, 142
Pernambuco, 25
Penang, 40
Rotterdam, 20
Samarang, 9
Seville, 231
Melbourne, 173 5 pkgs.
Genoa, 30
Galatz, 35
Newcastle, 18
New Orleans, 100
Para, 16
Passages, 50
Philadelphia, 40
Rio de Janeiro, 50
Samarang, 15
San Francisco, 10
,, 100 5
Sourabaya, 40
Trieste, 18
Wellington, 5

**Chemicals** (*otherwise undescribed*)
Riga, 1 £33
Montreal, 1 35
Patras, 4 c. 6
Syra, 5 3 q. 9
Genoa, 1 8 1 50
Rio de Janeiro, 5 cks. 2 cs. 67

**China Clay—**
Vera Cruz, 20 t.

**Chloride of Lime—**
New York, 76 t. 5 c. £590
Boston, 50 4 414

**Citric Acid—**
St. John's, Nfld., 2 q. £5
Barcelona, 10 c. 74

**Coal Tar Products—**
**Aniline Colours**
Montreal, 8 cks.
**Aniline Oil**
Barcelona, 25 tins.
N. York, 30 pns.
**Aniline Salts**
Barcelona, 2 t. 3 c.

**Condy's Fluid—**
Constantinople, 4 c. 3 q. £12

**Copperas—**
Patras, 2 t. 8 c. £5
Volo, 3 13 7
Syra, 4 8
Calcutta, 14 5 25

**Copper Sulphate—**
Morocco, 5 t. 19 c. £76
Boca, 1 12 33
B. Ayres, 1 1 3 q. 15
Barcelona, 6 19 4 89
Gr. Canary, 5 2 4
Beyrout, 9 3 8
Porto Alegre, 5 75
La Union, 2 31
Pachuca, 10 154
Palermo, 19 1 15
Syra, 10 8
Naples, 5 17 1 86
Calcutta, 5 76
Bombay, 5 76
Padang, 6 5
Callao, 13 2 11
Valparaiso, 1 10 23
Rouen, 7 10 112
Singapore, 15 11

**Creosote Oil—**
Galveston, 50 brls.

**Disinfectants—**
Trieste, 3 cks. £8

**Guano Phosphate—**
Hamburg, 5 t. 2 c. £26

**Gypsum—**
New York, 36 t. 10 c. £134

**Iron Oxide—**
B. Ayres, 4 t. 5 c. £85

**Lead Acetate—**
Havana, 5 c. 2 q. £7
Rio de Janeiro, 9 3 13

**Lime—**
C. C. Castle, 3 t. 3 c. £9

**Manganese—**
Calcutta, 1 t.

**Magnesia—**
Ferrol, 1 cs.
Genoa, 2

**Magnesium Carbonate—**
Valencia, 10 c. £15
Melbourne, 2 cs.

**Magnesium Sulphate**
Calcutta, 103 kgs.
Maceio, 10 brls.

**Metallic Sodium—**
Rotterdam, 2 t. 7 c. £660
Hamburg, 3 1 q. 45

**Nitric Acid—**
Vera Cruz, 1 c. 3 q. £5

**Ochre—**
Galatz, 50 kgs.
Bilbao, 43 brls.
E. London, 50
Kingston, 11

**Oxalic Acid—**
Trieste, 1 t. 2 c. £30
Bordeaux, 1 19
Rio de Janeiro, 1 2

**Phosphate of Lime—**
New York, 1 t. £15

**Phosphorus—**
Shanghai, 7 cks. £70
Havana, 5 cs. 50

**Pitch—**
Antwerp, 1 ck.

**Potassium Bichromate—**
Havana, 7 c. 1 q. £12
Ibrail, 10 14
San Sebastian, 1 t. 2 3 30

**Potassium Carbonate—**
New York, 7 t. 2 c. £141

**Potassium Chlorate—**
Santander, 1 t. £50
Hiogo, 5 260
Oporto, 1 51
Philadelphia, 5 246
Boston, 5 260
New York, 20 1,089
San Juan, 1 3 q. 6
Corunna, 10 31
Barcelona, 2 4 1 100
Calcutta, 6 15
Genoa, 3 5 166

**Potassium Prussiate—**
Genoa, 3 c. £20

**Potassium Stannate—**
Bombay, 2 t. £156

**Rosin—**
Hamburg, 133 brls.
Oporto, 20
Sourabaya, 42

**Rosin Oil—**
Volo, 4 brls.

**Salt—**
Adelaide, 85 t.
Benin, 10
B. Ayres, 40
Calcutta, 3,555
Galveston, 450
Newcastle, 100
Iceland, 143
Kingston, Jam., 100
Lisbon, 40 cs.
Marseilles, 1
Melbourne, 46½
Montreal, 1,890
New York, 215
Rotterdam, 202
Sandheads, 2,330
Santos, 6 2 c.
Shanghai, 25
Warre, 10
Trinidad, 40 4
Akassa, 200
Antwerp, 275
Boston, 200
Calcutta, 2,607
Chicago, 134
Copenhagen, 625
Drewin, 20
E. London, 5
Fredrikstad, 100
Halifax, 200
Kansas City, 130
Manaos, 200
St. John's, N.B., 400
Wellington, 29 19

**Salt Cake—**
Baltimore, 160 t. 9 c. £378
Bari, 20 6

**Saltpetre—**
Halifax, 10 c. £11
Maranham, 6 7
Mexico, 5 t. 2 106
Ceara, 11 3 13
Para, 2 10 56

**Sheep Dip—**
M. Video, 600 dms. 10 cs. £202
B. Ayres, 3 c. 2 q. 6
La Guayra, 1 ck. £10

**Silicate of Soda—**
Algoa Bay, 4 brls.
Melbourne, 12
Seville, 75
Alicante, 19 cks.
Barcelona, 70
Bombay, 40
Callow, 20
Lisbon, 26
Montreal, 37
Oporto, 5
Rotterdam, 10
San Sebastian, 200
Santander, 5
Savanilla, 40

**Soap—**
Accra, 65 bxs.
Alexandria, 20 cs.
Algoa Bay, 1,146 20
Appan, 20
Amsterdam, 20
Antwerp, 20 400
Barbadoes, 200
Brass, 100
Cabenda, 65
Calcutta, 5 1,000 bdls
Cameroon, 20
C. C. Castle, 90 20
Capetown, 95
Belgrave, 227
Constantinople, 20
Durban, 50
E. London, 100
Ferrol, 50
Hamburg, 4
Havre, 100
Iquique, 10
Monrovia, 20
New York, 100 105
Port Elizabeth, 50 50 50 brls.
,, Natal, 675
Sydney, 1,480
Toronto, 500
Valparaiso, 150 9
Melilla, 100
Warre, 150
Canaria, 1 10
Drewin, 112
Genoa, 36
Gibraltar, 60 17
Grand Bassa, 1 pkg.
Hong Kong, 12
Iquitos, 200
Macieo, 26
Madras, 2
Port Natal, 80
Quebec, 2
St. John's, N.F., 230
,, Thomas, 70
,, Vincent, 120
San Juan, 100
Shanghai, 350
Sierra Leone, 100
Syra, 5
Teneriffe, 274
Tienstin, 100
Trinidad, 814
Wellington, 350

**Soda—**
Adelaide, 1 ck.
Melbourne, 60 brls.
Wellington, 16
Algoa Bay, 13 bxs.
Salonica, 40

**Soda Ash—**
Baltimore, 784 cks. 2,736 bgs.
Boston, 33 tcs. 373 280
,, 1,440
Brisbane, 92
B. Ayres, 206
Calcutta, 49
Canada, 16 96
Philadelphia, 557 720
Rio de Janeiro, 5 105 60 b
Smyrna, 250 70
Sydney, 100
Galatz, 10
Melbourne, 25
Naples, 50
New York, 573 5,320 257 b
Odessa, 14
Oporto, 20
Santander, 21
Syra, 100 b
Varna, 100
East St. Louis, 192

**Soda Crystals—**
Canada, 50 kgs.
Malaga, 50
Malta, 25
N. York, 1,494
Philadelphia, 280
Bilbao, 14
Constantinople, 125 167
St. John's, N.F., 40 bgs.
Valparaiso, 20

**Sodium Arseniate—**
Lisbon, 4 cks.

**Sodium Biborate—**
Rotterdam, 2 cks.

**Sodium Bicarbonate—**
Adelaide, 50 kgs.
Algiers, 40
Antwerp, 40
Bari, 45
B. Ayres, 129 cks.
Calcutta, 510
Canada, 150
Capetown, 20
Genoa, 60
Ghent, 10
Malaga, 24 brls. 4
New York, 200
Sydney, 170
B. Ayres, 6
Copenhagen, 60
Hamburg, 12
Malta, 7
Santander, 20

**Sodium Carbonate—**
Boston, 252 brls.
Rotterdam, 20 kgs.

**Sodium Chlorate—**
Lisbon, 1 ck.

**Sodium Nitrate—**
Valencia, 9 t. 6 c.

**Sodium Stannate—**
Lisbon, 5 c.

**Sodium Sulphate—**
Valencia, 50 cks.

**Sulphur—**
Halifax, 2 t. 13 c. 2 q.
Iquique, 15
Rio de Janeiro, 20 4

15 80
ia, 65 2 338
50 2 260
10 5
17 2 q. 7
6 32

**Acid—**
: do Sul, 19 c. 2 q. £10

**sphate—**
s, 3 t. £7

**sphate of Lime—**
210 t. 5 c. 2 q. £395
25 8 80

, 15 brls.
23 cks.

50 brls.

Nfld., 1 c. £6

**als—**
eiro, 5 c. 2 q. £17

, 2 cs.
6 600 bdls.
1
4 cks.

**ride—**
1 t. 7 c. 1 q. £23

## HULL.

*nding August 20th.*

**n—**
, 1 ck.

2 cs.

—
100 cks.

**Powder—**
n, 2 cks.
;, 30

, 6 cks.

**oda—**
63 drums.
, 80
71
75
1 ck.

*(otherwise undescribed)*
10 cks.
, 20 12 pkgs. 12 btls.
40cs.
1
n, 4 20
, 11 473 slbs.
ople, 130
30
, 53 31 cs.
55
81 157
; 4
50 120 btls.
1,513 10
2
, 77 12 20
urg, 39 30
31 24 45 kgs.
11
9

**d Oil—**
, 100 c.
170
201
n, 100
34
2,227
; 54
, 2,041
100

n, 9 cks.
300

2 cks.
, 48 brls.
ople, 2
66

**ll—**
110 c.
11
21
94
, 34
nd, 61
, 392
nd, 41
95
68
137

**Manure—**
Copenhagen, 69 t.
Hamburg, 51

**Mineral White—**
Hamburg, 150 brls.

**Painters' Colours—**
Amsterdam, 6 cks.
Antwerp, 15 3 cs. 15 drums.
Bordeaux, 5
Bremen, 2
Bergen, 4
Copenhagen, 1 1 2 pks.
Christiansand, 96
Christiania, 21 112
Drontheim, 148
Dunkirk, 1 1 1
Danzig, 20
Ghent, 5
Gothenburg, 3 2
Hamburg, 22 2
Konigsberg, 20
Libau, 50
New York, 269 1
Odessa, 102
Rouen, 17
Rotterdam, 30 2 6
St. Petersburg, 1
Stettin, 43
Uleaborg, 125 8 6

**Pitch—**
Antwerp, 100 t.

**Salt—**
Abo, 50 bales.

**Soap—**
Christiania, 25 cs.

**Tallow—**
Helsingfors, 5 cks.

**Tar—**
Abo, 52 cks.
Amsterdam, 6
Bergen, 7
Copenhagen, 22
Christiansand, 5
Christiania, 3
Danzig, 5
Helsingfors, 11
Hamburg, 1
Uleaborg, 45
Wasa, 2

**Yarnish—**
Amsterdam, 3 cks.
Copenhagen, 1 cs.
Drontheim, 3
Rotterdam, 3

## GLASGOW.

*Week ending August 25th.*

**Alizarine Colours—**
Dunedin, 17½ c. £120

**Alkali—**
Dunedin, 4 t. 8¾ c. £33

**Bichromate of Potash—**
Valencia, 22 t. 3¼ c. £856
Christiania, 5 cks. 75
Stockholm, 1 17
Bombay, 4 £8. 8s.
Wellington, 1 11¾ 68

**Bleaching Powder—**
Sydney, 6 t. 6 c. £44
Bombay, 2 ½ 22
Hong Kong, 25 180

**Borax—**
Montreal, 11 t. 1¾ c. £306
Wellington, 1 8½ 41

**Caustic Soda—**
Nantes, 102 c. £51
Dunedin, 39¼ 21

**Carbolic Acid—**
Bombay, £18

**Coal Tar—**
Calcutta, £51
Bombay, 20 t. 14½ c. 55
St. John's, N.F., 100 brls. 45

**Copperas—**
Bombay, 20 t. 2¼ c. £50
,, 35

**Dextrine—**
Melbourne, 20 c. £25

**Indigo—**
Dunedin, 4 c. 14 lb. £82
Melbourne, 46½ 98

**Linseed Oil—**
Cape Colony, 48¼ c. £64
Dunedin, 3 t. 17 59
St. John's, N.F., 1 19 34

**Logwood Extract—**
Valencia, 2 t. 18¾ c. £65

**Madder—**
Dunedin, 12¾ c. £36

**Manure—**
Dunedin, 5 t. £35

**Magnesia—**
Valencia, £109

**Paraffin Wax—**
Valencia, £205
Nantes, 21 c. 41
Italy, 2 8
Antwerp, 40 70
Dunedin, 7 t. 5 240

**Paint—**
Cape Colony, £72
Colombo, 12 c. 45
Bombay, 14 t. 17¼ 117
Quebec, 10 45

**Painters' Colours—**
Calcutta, 5 t. £70
Malta, 29¾ c. £27. 15s.
Wellington, 377
Melbourne, 47 56

**Rosin—**
Bombay, 11 t. 13 c. £51

**Salts of Potash—**
Cape Colony, 35 t. £4,548

**Sheep Dip—**
Dunedin, 5 t. 10 c. £200

**Soap—**
Trinidad, 6 t. 4 c. 2 q. £100
Colombo, 1 9 2 £23. 15s.
New York, 1 8 1 21
St. John's, N.F., 110 84

**Soda—**
St. John's, N.F., 78 c. £16
Dunedin, 59¾ 20

**Sulphate of Ammonia—**
Demerara, 27 t. 15 c. £283
Valencia, 77 6¾ 744
Nantes, 60 12¾ 608
Bordeaux, 100 19 1,212

**Sulphur—**
Demerara, 9 t. 19 c. 2 q. £62

**Sulphuric Acid—**
Straits, 3 t. 6½ c. £20

**Tartar—**
Dunedin, 7¼ c. £28

**White Lead—**
Cape Colony, 2 c. £37
Dunedin, 10 t. 5 211

**Zinc Powder—**
Japan, 2 t. 19½ c. £61

## TYNE.

*Week ending August 20th.*

**Alkali—**
Antwerp, 5 t. 7 c.
Christiania, 5 8
Genoa, 7 4
Rotterdam, 2

**Alum—**
Danzig, 10 t.

**Ammonium Sulphate—**
Barcelona, 60 t. 7 c.

**Arsenic—**
Genoa, 2 t. 14 c.
Barcelona, 1 16

**Barium Binoxide—**
Dunkirk, 5 t. 1 c.

**Barium Chlorate—**
Genoa, 1 t. 1 c.

**Baryta Nitrate—**
Genoa, 18 c.

**Barytes—**
Hamburg, 156 t. 13 c.
Malta, 5
Rouen, 67 13

**Bleaching Powder—**
St Petersburg, 24 t.
Dunkirk, 10 4 c.
Hamburg, 56 7
Odense, 4 15
Antwerp, 34 7
Christiania, 40 4
Danzig, 166 16
Rotterdam, 19 11
Rouen, 7 9
Ancona, 5
Trondhjeim, 10 1
Gothenburg, 5 2

**Caoutchouc—**
Bergen, 2 c.

**Carbolic Acid—**
Odense, 14 c.

**Caustic Soda—**
Hamburg, 7 t. 16 c.
Antwerp, ¼
Malta, 29
Christiania, 7
Genoa, 14 10
Barcelona, 60 18
Ancona, 2
Bergen, 3
Gothenburg, 4 18

**Chemicals** *(otherwise undescribed)*
Pomaron, ¼ c.

**Colours—**
Genoa, 3 t. 7 c.

**Copperas—**
Randers, 1 t. 1 c.

**Litharge—**
Hamburg, 2 t. 17 c.
Antwerp, 10
Gothenburg, 1 8

**Magnesia—**
Hamburg, 5 c.
Genoa, 4
Barcelona, 8 t.

**Phosphorus—**
Barcelona, 15 c.

**Soap—**
Antwerp, 1 c.

**Soda—**
Antwerp, 2 c.
Bergen, 3 t. 11
Gibraltar, 20 3

**Soda Ash—**
Malta, 10 t. 2 c.
Laurvig, 8
Danzig, 130 8
Ancona, 3 7
Bergen, 3 8
Copenhagen, 10 1
Gothenburg, 10 10

**Sodium Hyposulphate—**
Barcelona, 1 t. 2 c.

**Sodium Silicate—**
Bilbao, 16 t. 7 c.
Barcelona, 6 13

**Sodium Sulphate—**
Helgenas, 299 t. 19 c.

**Sulphur—**
Christiania, 100 t.
Drammen, 100
Gothenburg, 2 c.

**Superphosphate—**
Helsingfors, 2,085 t. 4 c.

**Tallow—**
Hamburg, 5 trcs.
Antwerp, ¼ c.

**Turpentine—**
Antwerp, 7½ galns.

**Yarnish—**
Antwerp, 40 galns.

**White Lead—**
Rudkjobing, 1 c.
Gothenburg, 1 t. 17

## GOOLE.

*Week ending August 10th.*

**Alkali—**
Dunkirk, 30 cks.

**Benzol—**
Rotterdam, 25 cks.

**Bleaching Powder—**
Ghent, 15 cks.

**Chemicals** *(otherwise undescribed)*
Boulogne, 16 dms.
Hamburg, 67 cks.
Rotterdam, 10

**Coal Products** *(otherwise undesc'd.)*
Dunkirk, 1 ck.
Ghent, 20 cks.

**Dyestuffs** *(otherwise undescribed)*
Hamburg, 10 cks.

**Manure—**
Dunkirk, 100 bgs.
Hamburg, 100

## GRIMSBY.

*Week ending August 13th.*

**Alkali—**
Dieppe, 8 dms.

**Chemicals** *(otherwise undescribed)*
Dieppe, 13 cks. 203 pkgs. 2 cs.
Hamburg, 92 72

**Coal Products** *(otherwise undesc'd.)*
Dieppe, 147 cks.

# PRICES CURRENT.

WEDNESDAY, August 31st, 1892.

Prepared by Higginbottom and Co., 116, Portland Street, Manchester.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids :—** | | | | |
| Acetic, 25 °/₀ and 40 °/₀ | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | 50/- | | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 °/₀) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ( ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 5 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 3 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 9 | 17 | 6 |
| ,, ,, (grey) Hull | ,, | 9 | 16 | 3 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 8 | 17 | 6 |
| ,, Liquor, 7 % | ,, | 2 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes :—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8¾ |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 10½ |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 7 |
| ,, 50/90 ,, | ,, | 0 | 1 | 3 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 6¼ |
| ,, (crude 60°) | per gallon | 0 | 1 | 6 |
| Creosote (ordinary) | ,, | 0 | 0 | 1½ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 0 | 11 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 44 | 8 | 9 |
| ,, Sulphate | ,, | 15 | 5 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 12 | 6 |
| ,, Litharge Flake (ex ship) | ,, | 14 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, (brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 6 | 0 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 4 | 0 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 3 | 9 |
| **Oils :—** | | | | |
| Cotton-seed | per ton | 18 | 15 | 0 |
| Linseed | ,, | 20 | 0 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 6½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 10 | 0 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10¼ |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 | 0 |
| Silver (metal) | per oz. | 0 | 3 | 1 1/16 |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 48% | ,, | 5 | 7 | 6 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, | 6 | 5 | 0 |
| ,, ,, (Soda Crystals) | ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 18 | 10 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 10 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8 |
| ,, Borate (Borax) | net, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3 |
| ,, Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton (10 ton lots) | | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) ,, ,, ,, (10 ton lots) | | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) ,, ,, ,, (10 ton lots) | | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) ,, ,, ,, (10 ton lots) | | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) ,, (10 ton lots) | | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | |
| ,, Hyposulphite | ,, | 7 | 15 | |
| ,, Manganate, 30% | ,, | 16 | 0 | |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | |
| ,, Nitrite, 98 % | per ton | 30 | 0 | |
| ,, Phosphate | ,, | 15 | 10 | |
| ,, Prussiate | per lb. | 0 | 0 | |
| ,, Silicate (glass) | per ton | 5 | 7 | |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 16 | |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | |
| ,, Sulphide | ,, | 7 | 15 | |
| ,, Sulphite | ,, | 6 | 12 | |
| Strontium Hydrate, 100% | ,, | 8 | 10 | |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | |
| ,, Barium, 95 % | ,, | 0 | 0 | |
| ,, Potassium | ,, | 0 | 0 | |
| Sulphur (Flowers) | per ton. | 8 | 0 | |
| ,, (Roll Brimstone) | ,, | 6 | 15 | |
| ,, Brimstone : Best Quality (nominal) | ,, | 5 | 0 | |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | |
| Tallow | ,, | 26 | 5 | |
| Tin (English Ingots) | ,, | 96 | 10 | |
| ,, Crystals | per lb. | 0 | 0 | |
| Zinc (Spelter) | per ton | 20 | 15 | |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | |

THE

# HEMICAL TRADE JOURNAL

AND

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## CURRENT TOPICS.

### THE STRIKE OF THE WEAVER WATERMEN.

THE rapid development of the hostile attitude of the unionist employés of the Salt Union, Limited, during the past fortnight is an unfortunate illustration of the strained relations which prevail between employers and employed. It is, as yet, barely twelve months since decided overtures were made by the Salt Union to meet the wishes of the Weaver watermen in regard to the arrangement of terms, and it can hardly be deemed surprising that the Salt Union decided this time to fight instead of yielding.

Since the unionist employés refuse to co-operate with the non-unionists engaged by the Salt Union, a further importation of non-unionists was a natural sequence. This action on the part of the Salt Union was resisted by the strikers, who promptly resorted to rioting, with the result that they succeeded in compelling the non-unionists, brought to Winsford at the expense of the Salt Union, to return to Liverpool, their tickets being taken by the strikers.

Not content with molesting those who had been engaged by the Salt Union as substitutes, the unionist men further stoned the barges and generally destroyed the property of the Salt Union, inflicting personal injuries in several instances.

The Salt Union have, however, again been the first to put forward conciliatory measures, and it was hoped that, by the mediation of the Bishop and High Sheriff of Cheshire, a satisfactory agreement would be arrived at.

The strike system has many aspects, and the question of how long it will be the usual thing for men to assault their employers and their representatives directly they can't get just what they want is a matter upon which we may have something to say in the future. Intimidation, we have generally understood, is a punishable offence; yet, in the majority of cases, those who take rather stringent measures to protect themselves from the truculency of strikers are more often taken to task than the aggressors themselves. But we anticipate. For the nonce let it suffice to say that a termination of the struggle was successfully made on Tuesday last, and we trust a repitition of these differences may not occur again for a long time.

### ECCLES AND THEIR GAS SUPPLY.

It has been known for a considerable time that Eccles has been making an effort to terminate their dependency on Salford in the matter of their gas supply, and although the attempt to obtain power from the late Parliament to start their own works was not ultimately successful, still the matter has not dropped by any means. The sub-committee appointed to consider this point, in their report recently issued, state that the Salford Corporation informed the deputation sent by the committee to approach the Corporation on the matter of the reduction of the differential rate imposed on the outlying districts, that a reduction to the extent of twopence

was the utmost concession which could be made, although the Corporation made a profit of £28,944. last year.

In consequence the sub-committee recommended the Eccles Local Board to take the necessary steps to promote another bill to enable Eccles to produce their own gas, which they can do at a profit. The report, which was unanimously adopted, contains a great deal of interesting matter in connection with this subject, the greater part of which we hope we shall shortly be able to place before our readers, when they will be able to judge for themselves as to the advisability of the projected proceedings.

## THE MERSEY AND IRWELL JOINT COMMITTEE.

THT usual monthly meeting of the above named committee was held on Monday last, at the Committee's offices, Mosley-street, Manchester.

The Chairman, the Rt. Hon. J. T. Hibbert, in opening the proceedings, called attention to the fact that since the last meeting of the Committee he had been appointed a member of Her Majesty's Government. This, he pointed out, would prevent his giving that close attention to the duties of the chairmanship which it had been his pleasure to do in the past, and therefore he wished the Committee to consider, in the course of the next few weeks, whether it was desirable he should resign the chairmanship or retain it and carry on the work as heretofore, with such assistance as he might get from the vice-chairman (Mr. Alderman J. Thompson). Personally, of course, he would feel it an advantage to be relieved from the duties of the chair, but he felt such a great interest in the work they had in hand that if it was the desire of the Committee that he should continue to hold the position of chairman, he would do his utmost to meet the wishes of the Committee. (Hear, hear.) At the same time he could not, of course, promise, if he did that, to be always in the chair at the monthly meetings, but whenever he had the opportunity he would be very glad to assist, as far as he could, in carrying on the work they had to do. He must say he did not think they ought to take a pessimist view of the work so far conducted by the Joint Committee. He thought they had already done considerable work. They had shown the public there was a work to be done, and that this Committee had been appointed to do it. What he felt to be the most satisfactory matter in respect of it was this—that they had the sympathy of the public in favour of the work they had in hand. The manufacturers, too, on their part had shown the best feelings towards the Committee; and he thought with respect to the local authorities that, speaking generally, they were conscious of the great importance of the work and the responsibility resting upon them. The question was very much one of education, and he hoped that the Joint Committee would be able to educate manufacturers and local authorities upon the questions to be dealt with. (Hear, hear.)

On the motion of Mr. Killick (Altrincham), seconded by Mr. W. Noton (Oldham), and supported by Mr. Alderman Griffin (Manchester), a resolution was adopted with acclamation congratulating Mr. Hibbert on his appointment as a member of Her Majesty's Government. Each of the speakers, irrespective of political considerations, expressed pleasure at Mr. Hibbert's appointment. Touching the question of chairmanship, Mr. Killick remarked that the feeling among members of the Committee was that Mr. Hibbert was "the right man in the right place," and that as the Committee was largely a child of his own creation, it would be a misfortune if it were not allowed to grow up under his careful direction. The Chairman thanked the Committee most warmly for the resolution. Though he had been fortunate enough, he said, to be returned once more to the House of Commons, and to be appointed a member of the Government. he must say that he did not give up his interest in the work of the Joint Committee. Happily they could do their work without party feeling. He recognised no party on the Committee; and he was greatly obliged for the kind feeling that had been expressed.

### DEPUTATION FROM STALYBRIDGE.

A deputation from the Corporation of Stalybridge waited upon the Committee and asked for an extension of time in which to execute works for the treatment of sewage. Mr. Alderman Machell (chairman of the Rivers Pollution Committee) stated what his committee were doing in the matter. They were negotiating for the purchase of land for sewage works, and hoped soon to be in a position to submit a sewage scheme. The Chairman impressed upon the deputation the importance of losing no time in this matter. The Joint Committee did not wish to deal harshly with the Corporation of Stalybridge; at the same time they must call upon the borough to act up to what was required by the law, just as they had done in regard to other towns, and if the Corporation would be prepared in the course of the next two months to make application to the Local Government Board for power to borrow money for the execution of sewage works their request for further time would be acceded to.

### PROCEEDINGS AGAINST BURY.

It was reported that no answer had been received from the Bury Corporation in regard to the Committee's demand that a scheme for the treatment of sewage should be undertaken. The Committee, however, were aware from what had appeared in the newspapers that the question had been considered by the Bury Town Council and by the ratepayers generally, and that a poll of the ratepayers had ended in a decision to do nothing. It was thereupon resolved to instruct the clerk to take immediate action against the Bury Corporation in order to enforce compliance with the Committee's demands.

### TIME EXTENSIONS.

The Committee next considered applications from various local authorities for extension of time in which to execute work for the treatment of sewage in their respective localities. The first was from the Bollington Local Board. The Board submitted that as there were only four water closets in the whole of their district the amount of sewage pollution in Bollington was practically nil. What pollution there was came from the liquids turned into the stream by manufacturers. The Chief Inspector was instructed to report again, three months hence, with respect to Bollington. It was reported that a deputation from the Local Board of Mossley would wait upon the Committee at the October meeting to explain what steps had been taken to prevent river pollution in that district. With reference to the Local Board of Barton, Eccles, Winton, and Monton district, the Chief Inspector was instructed to report again at the next meeting. The case of Failsworth was also referred to the next meeting. From Kersley came the information that the contract for the construction of sewage works had been let, and that the contractor was proceeding with the work as quickly as possible. The Chief Inspector was asked to report again three months hence. A deputation from the Little Lever Local Board purpose waiting on the Committee at the October meeting. The application from the Radcliffe Local Board was also deferred for a short time. So also was that which came from Reddish. The Hurst Local Board will be asked to submit a scheme in the course of the next three months, and the Wilmslow Local Board within two months.

### THE CHIEF INSPECTOR'S REPORT.

The Chief Inspector (Mr. Tatton) presented his report as follows:—

In accordance with your instructions I beg to report as follows on the sewage of Whitefield, Atherton, and Aspull:—

Whitefield.—The sewage from a portion of this Local Board district is intended to be added to that of the Radcliffe Local Board and treated by them, the remaining portion goes to the sewage works; these works consist of tanks and five acres of land for filtration. The tanks appear to have been constructed some considerable time ago and are not in very good order, but as the Local Board are spending £286. on their renovation some improvement may be looked for. At the time of my visit the tanks, owing to the repairs being in progress, were not being used and the effluent was very bad, but it will be fairer to judge of the efficiency of these works when they have been put in order.

Atherton.—The sewage of this district is treated at two separate works, one at Hindsford and the other at Glasshouse. The treatment at both places is the same, alumino-ferric and lime being used as precipitants, with subsequent filtration through coke. The Hindsford works are new, and if carefully attended to are capable of turning out a good effluent. The Glasshouse works are old and out of repair, owing partly to sinkage from colliery working underneath, and want reconstructing; the effluent is usually bad, as shown by the condition of the brook into which it flows, which is clear above the works but much polluted below. I am informed by the Clerk that the Board have the reconstruction of these works under consideration, and intend, if necessary, to take steps for compulsory purchase of more land.

Aspull.—As regards the sewage works of this authority, I reported to you on June 13 that they were in a very bad condition, and had not apparently been cleared out for months. On the 18th of August the Clerk wrote to say that the Board contemplated carrying out an additional sewage scheme for the Lower and Higher Gullet districts, which will dispense with the present works.

Bollington.—I have made an inspection of the Bollington district, with a view of obtaining further information as to the pollution of the river Dean. The polluting matter consists of the sewage of the town and the refuse from a bleachworks, a printworks, a hatworks, and a paper-staining works; tanks for treating the printworks refuse have been put down, and when they are in working order and a precipitant is used they will, I think, be sufficient. The pollution from the other three works is not great, and can be dealt with without difficulty. As regards the sewage pollution, the district is sewered, and the sewers discharge by several outlets into the river, but the bulk is probably at

no time great. There are only two or three water closets and no water supply, except from pumps which are apt to run short in dry weather. The number of the population (3,900) would certainly lead one to expect pollution, but the stream, which after leaving the town flows through meadows till it reaches Handforth, six miles below, has a rapid flow and gravelly bed, which tend to improve the condition of the water to such an extent that little or no pollution is observable a mile below the village; in fact, fish live in the water and cattle drink it. There are, of course, many places with a smaller population than Bollington which treat their sewage, but the fact that this place has no water supply makes it, I think, rather a special case, and one which the Committee might perhaps be justified in dealing with differently to the others.

CINDER TIPPING.—Notice of action has been served on three firms for tipping cinders and flue dust into the river, and on one firm for sludging out their lodge. Careful inspection has been made during the past month of every works on the banks of the streams in order to ascertain what means are taken by each manufacturer to dispose of his ashes, and increased attention will then be paid to doubtful cases. Tipping into the river has been carried on in the past to an enormous extent, especially in some districts, but by close inspection it is now reduced to a minimum, as evidenced by the information I get from millowners as to the reduction in the amount of ashes brought down into their lodges. There will always be some solid matter, especially in times of heavy rain, washed from cinder roads and foothpaths, and to this must be added that due to the erosion of the river banks. This erosion will cause a continual deposit in the lower reaches of the river, and will amount to a very large quantity in the course of the year, augmented as it is by every rivulet in the watershed.

The Chairman said the action of the Committee in regard to the tipping of cinders had led to an improvement. One manufacturer said he was being put to an expense of £100 a year. It should, however, be remembered that the Ship Canal Company would be put to the expense of £1,000. a year to dredge the upper reaches of the Mersey if cinders were allowed to enter the stream.

Mr. Alderman Hopkinson: We find a material difference in the Medlock.

Mr. Haslam: I think the improvement in the rivers is obvious wherever we go.

Mr. Killick gave notice of his intention to move at the next meeting that a sub-committee be appointed to consult with and advise the chief inspector and the clerk during the time between the meetings of the Committee.

## THE PHOSPHATES OF ALGERIA AND TUNIS.

IT is significant of the interest now being taken in the deposits of phosphate of lime that the greater part of the *Bulletin de la Societe Geologique de France* for the first half of last year should be given to a description of the phosphates of Algeria and Tunis by M. Philippe Thomas, and that at the same time in the quarterly journal of the Geological Society of England should be a paper on the phosphatic chalk at Taplow, by Mr. A. Strahan.

These deposits recently found in Tunis and Algeria bid fair to rival those of Florida, and though they are both primarily eocene deposits, they differ considerably in geological conditions; both, however, seem to be derived from the leaching of a phosphatic limestone. The new beds described by M. Thomas resemble very closely the deposits of Ciply in Belgium and Taplow in England, except that they seem far more extensive. They are found on the "hauts plateau" of Tunis, and are distant about 200 kilometres from a seaport. A portion of them has been exhaustively examined by competent engineers. There are other tracts discovered but not yet thoroughly examined.

The phosphate occurs in well defined strata, overlaid and underlaid by a more or less crystalline limestone, all tilted at an acute angle, so that the outcrop is distinct and readily traced, examined and worked. This outcrop has been carefully examined and measured for a distance of 30 kilometres, though traced for about 60 kilometres. The beds in which the belts of phosphatic chalk occur have a thickness of from 30 to 50 metres. The richest bed had a mean width of 10 metres and will average 50 per cent. of phosphate of lime. This by washing can readily be increased to 60 per cent. or 65 per cent. tricalcic phosphate, and there is an abundant and constant supply of water. These phosphates contain less than 1 per cent. of iron and alumina and very little silica. The engineers sent by the French geological survey estimate that there are at least 10,000,000 tons of 60 per cent. phosphate in sight, and it is presumed that as the strata are tilted the deposit will continue in depth, but they have only estimated what can be extracted without machinery. A railway is projected to reach these beds. Concessions for mining them have already been secured from the Government by a French syndicate, and it is expected that very shortly active development will begin and these phosphates placed on the market. Native unskilled labour is abundant and cheap.

MM. Tissot and Mercier, who have also examined these beds prophesy that Tunis, which in the time of the Romans was known as the granary of the world, but which is now sterile, will regain its old fertility, as it is phosphate which has been lacking.

A great number of fossils were found and determined in the phosphate beds, and there is a large amount (8 per cent.) of organic matter present in composition. The phosphate is of a greyish to yellowish colour, with brownish pebbles, and seems to be physically identical with the deposits at Taplow and Ciply; there is the same matrix of phosphatic chalk, with fish coprolites and broken fragments of bone and teeth, fish scales, etc. The occurrence is also noted of a number of "pebbles" of a phosphate chalk, covered with a crust of dark coloured, resinous phosphate which seems identical with some varieties of Florida "pebble."

The discovery is very interesting, and this section will probably provide at no very distant date vast quantities of phosphate, and may prove a formidable rival to South Carolina and Florida.

## AMMONIUM MAGNESIUM PHOSPHATE.

THE agricultural papers are beginning to mention a new product of very great fertilizing value, known as ammonium magnesium phosphate, the composition of which is as follows:—

| | |
|---|---|
| Ammonia | 12·14 (10% of nitrogen) |
| Phosphoric acid | 50 |
| Magnesia | 28·50 |
| Water | 9·36 |
| | 100·00 |

A manure as rich as this in fertilizing constituents presents advantages from the point of view of cheap transport, but it will be too expensive to command a ready sale.

It can, moreover, only be employed in mixtures, for its composition would not permit of its use alone, the amount of phosphoric acid being too great in proportion to the nitrogen.

This substance, although almost insoluble in water, is very easily assimilated. It is obtained, like the precipitated phosphates as a very finely divided powder, in which condition it, of course, offers a very large surface to the roots. Its insolubility will nevertheless be injurious to its ready use and will prevent its employment in commercial mixed manures, for as soon as one element, the phosphoric acid for example, can no longer be estimated in the soluble form, it loses much of its value, the purchaser not having any further control to verify its source. The door is thus opened for fraud of every kind.

This fertilizer should nevertheless be much appreciated for the cultivation of the sugar beet, because in the first place it does not contain salts prejudicial to the crystallization of the sugar, and secondly, because of the magnesia which is present.

Hitherto no great importance has been attached to the use of magnesia as a fertilizer, it having been imagined that soils contain sufficient of it. The beet is, however, one of the plants which extracts most magnesia from the soil, and in land on which the cultivation of beets is frequently carried out, the addition of magnesia may produce excellent results. The average amounts of magnesia removed per hectare per annum are:—

| | | |
|---|---|---|
| 20-25 | kilos. | by cereals and leguminous seed plants. |
| 20-35 | ,, | by industrial plants (colza, linseed, etc.) |
| 15-35 | ,, | by roots. |
| 50-65 | ,, | by sugar beets and forage plants. |
| 10-15 | ,, | by the vine. |

—*L'Engrais.*

## EFFECT OF TEMPERATURE ON QUININE SOLUTIONS.

M. L. PRUNIER (*Journ. de Pharm. et Chim.*) has investigated the conditions under which the testing of quinine sulphate by means of ammonia, may be most advantageously conducted. He examined the composition of the deposits formed at various intervals during the cooling of a saturated solution of commercial sulphate which had been raised to a temperature of 100°C. It was found that between 100° and 90° hardly any of the salt was deposited. The deposits formed between 90° and 50° varied in their composition, and were tolerably pure. Here, then, we have a very simple method of purifying the commercial product. On the other hand, crystals thrown down at a temperature of 50° to 40°, contained a great deal of sulphate of cinchonidine, which was most abundant between 35° and 40°. It was ascertained that the proper filtration temperature when testing quinine sulphate with ammonia, was one of about 15°, this being the degree at which different samples are best compared with one another.

## THE ANALYSIS OF CYLINDER DEPOSITS.

THE deposits in steam cylinders, formed by the decomposition of lubricating oils, can be classified under two heads, and Mr. T. B. Stillman, in a paper appearing in the *Journal of Analytical and Applied Chemistry*, classifies them as simple or compound, depending upon whether the deposit is due to the decomposition of the oil alone or if foreign matters, carried over in the steam from the boilers, are also present.

In the former case, carbon, hydrocarbons, oils, and iron oxide are the principal constituents, whereas, in the latter, oleate of lime, carbonate of lime, and silica are often present in addition to the former.

The following analysis of a sample from a locomotive cylinder would indicate a simple deposit :—

| | | Per cent. |
|---|---|---|
| Moisture | | 2·28 |
| Oils soluble in ether | Animal | 10·54 |
| | Mineral | 11·23 |
| Hydrocarbons insoluble in ether | | 47·97 |
| Fixed carbon | | 23·73 |
| Iron oxide FeO | | 2·83 |
| Undetermined | | 1·42 |
| Total | | 100·00 |

And the one given below, of a deposit from the steam cylinders of a large stationary engine, would show that scale forming material from the boilers had become a component :—

| | | Per cent. |
|---|---|---|
| Moisture | | 13·12 |
| Oils soluble in ether | Animal | 8·15 |
| | Mineral | 7·86 |
| Soap | | 2·10 |
| Hydrocarbons insoluble in ether | | 1·67 |
| Fixed carbon | | 2·71 |
| Oxides of iron (and aluminium) | | 6·81 |
| Silica | | 3·65 |
| Carbonate of lime | | 43·22 |
| Carbonate of magnesia | | 10·17 |
| Undetermined | | 0·44 |
| Total | | 100·00 |

In many samples, I have found copper and zinc in the deposits, formed by the corrosive action of the liberated oleic acid from the animal oil upon the brass or composition bearings.

This corrosive action is very marked where a poor quality of lubricating oil, composed of animal or vegetable oil, is used ; whereas, a pure neutral mineral oil has no acid action at steam temperature. Oftentimes the statement has been made to me, when the deposit was given for analysis, "All of our lubricating oil is pure mineral oil ; we use no other." And yet, upon analysis, lard oil would be shown in comparatively large amounts.

This is accounted for from the fact that while the consumer believes he is using pure mineral oil—which was sold to him as such—the manufacturer has introduced from 3 to 30% of lard oil.

A large majority of the so-called "pure mineral" lubricating oils for cylinder use contain at least 3% of animal oil ; and it is the exception and not the rule to find a "pure mineral" oil for cylinder lubricating purposes.

An analysis of a deposit from the steam cylinder of a large freight steamer gave as a result :—

| | | Per cent. |
|---|---|---|
| Moisture | | 16·16 |
| Oils soluble in ether | Castor oil | 26·19 |
| | Mineral | 32·50 |
| Fixed carbon | | 7·92 |
| Copper | | 0·50 |
| Iron oxide (FeO) | | 25·10 |
| Undetermined | | 1·63 |
| Total | | 100·00 |

Pure mineral lubricating oil was supposed by the officers of the vessel to be the only lubricant used, and special care had been taken to secure it, but it appears that the engineer added a small amount of castor oil to the mineral oil, as, in his opinion, it made a better lubricant.

The decomposition of the castor oil and liberation of the fatty acid was the primary cause of the deposit.

The action of the fatty acids upon the iron and metal bearings results in different products. That is to say, while the copper when present has generally been estimated as copper oxide, the iron may exist only as oxide or as metallic iron, or both.

No doubt the oleic acid acts to form salts of these metals, but it is certain, in many instances, that when formed, they are immediately decomposed or partially so, and a resulting mixture formed that is somewhat difficult of analysis.

In the analysis here given, it will be noticed that the iron was found both as metal and as oxide.

| | | Per cent. |
|---|---|---|
| Moisture | | 3·77 |
| Oils soluble in ether | Animal | 21·27 |
| | Mineral | 19·60 |
| Soap | | traces |
| Fixed carbon | | 10·90 |
| Iron oxide (FeO) | | 14·01 |
| Iron | | 27·85 |
| Lead oxide | | 0·82 |
| Copper oxide | | 1·07 |
| Undetermined | | 0·71 |
| Total | | 100·00 |

The evolution of hydrogen by HCl, from the deposit, after all oils and fatty substances had been removed, indicated the presence of metallic iron, and the analysis of the residue, after the combustion of the fixed carbon, gave figures by which the ratio of Fe and FeO could be determined. A portion of the deposit, after extraction of oils by ether, is dried, then weighed, the hydrocarbons driven off by heat, and the amount of fixed carbon present converted by combustion with $H_2SO_4+CrO_3$ into $CO_2$ and weighed, this weight being calculated back to carbon.

Another portion of the same residue is ignited in a platinum crucible until the carbon is all consumed, then weighed. If the amount of carbon found is small and iron large, this weight may be larger than the original weight of residue taken, owing to oxidation of metallic iron to $Fe_2O_3$.

Knowing the weight of carbon, and by making a determination of iron in another sample before ignition, the amount of FeO is easily found.

## THE ADULTERATION OF GUANO.

THE necessity for some of our agricultural colleges undertaking an investigation upon the value of chemical and natural fertilizers is emphasised by the results which have been obtained through the instrumentality of the work of the Belgium State Laboratory. Knowing the extent of the sophistication to which guano is subjected, special attention has been given to this matter, and the following are some of the more common substances employed in the preparation of artificial guano.

As a source of nitrogen, dried blood, ground horns and leather, and fish are frequently used, in addition to ammonium sulphate and nitrate of soda. Phosphoric acid is obtained from superphosphate of lime, and more often from ground mineral phosphates, containing a high percentage of oxide of iron. Under certain circumstances, feathers, peat, sulphate of iron and oxide of iron are employed, also salt and kainit, and sometimes even sand.

The methods which are adopted in order to give the finished product the desired appearance are numerous. In the case of feathers, the feathers are first bleached and boiled in water containing guano, so that when the feathers are mixed with the other ingredients a guano is obtained which has an excellent appearance. This method has established quite a trade in feathers in Belgium, where numbers of sacks of feathers have been seen piled up in some works where artificial fertilizers are manufactured.

When examined under the microscope, these guanos can generally be distinguished by the recognition of separate crystals of nitrate of soda and sulphate of ammonia, but sometimes the materials are so intimately mixed that mechanical separation is impossible, when analysis must be resorted to in order to ascertain the nature of the compound. The supposition that the production of a white ash is a sure indication of a pure guano is totally erroneous, a mixture of highly ferruginous mineral phosphate and sulphate of ammonia giving a perfectly white ash. Before trying this test therefore, all sulphate of ammonia must be removed previously, by washing with water, and the indications of the ash should only be taken as positive when due consideration has been given to the chances of other ingredients being present which influence this rough and ready test.

A NEW EXPLOSIVE.—Herculite, a new French explosive, is a yellowish-grey powder, composed of sawdust, camphor, nitrate of potash, and several substances that are kept secret. It cannot be fired by sparks, flame, or detonation. At a trial, a half pound charge of the compound was inserted in a blast hole about 4ft. in depth, tamped with sand and earth, and fired by a special igniter. A block of stone about 30 tons was, it is said, displaced.

## THE SEWAGE QUESTION AT BURY.

As was reported at the recent meeting of the Town Council of Bury a poll was demanded, and at the last meeting of the Council the result of the recent poll as to whether the Town Council should proceed with the sewage scheme was declared. Two years ago at a public meeting of the ratepayers a resolution was passed instructing the Town Council not to proceed with a scheme, estimated to cost £100,000., in order to keep the sewage out of the rivers Roch and Irwell. Since then the Joint Committee for Lancashire and Cheshire have obtained additional powers and have threatened the Bury Corporation with legal proceedings unless they at once proceeded to dispose of the sewage under the Rivers Pollution Act, 1876. The Corporation at a meeting in August passed a resolution to the effect that they had delayed as long as they could, and in face of the new powers granted to the Joint Committee they felt compelled to proceed with the works; but having regard to the resolution of 1890 they decided to refer the matter to a ratepayers' meeting. Such meeting was held on the 17th August, when the resolution of 1890 not to proceed with the scheme until the law as to the incidence of taxation was so altered that the ground landlord was compelled to contribute his fair share of the cost was affirmed. A poll was demanded, and one was taken at the end of last week. The Town Clerk reported that 11,949 papers were issued and 11,559 delivered, 390 not being delivered owing to deaths, etc. Of the papers returned 3,987 were against proceeding with the scheme, 3,136 were in favour of proceeding, 2,585 were returned blank, 12 were spoiled, and 1,839 were not collected. The Town Council referred the question to the General Purposes Committee.

## THE ANALYSIS OF NITRO-EXPOSIVES.

By P. Gerald Sanford, F.I.C., F.C.S.

Now that the various forms of nitro-compounds are gradually replacing the older forms of explosive agents, both for blasting purposes and also as a propulsive agent, perhaps some notes upon the methods for their analysis and examination, that I have used and found to work satisfactorily, may be of service to other chemists who may be engaged upon similar work. The class of compounds that have come into the most extended use for the purposes of mining, blasting, etc., are the nitro-glycerine compounds, more especially the gelatine compounds, composed of nitro-cellulose and nitro-glycerine, and generally containing some admixture of nitrates and wood pulp, or similar materials.

### KIESELGUHR DYNAMITE.

This material generally consists of 75% nitro-glycerine and 25% of the infusorial earth Kieselguhr. The analysis is very simple, and may be conducted as follows: weigh out about 10 gms. of the substance, and place over calcium chloride, in a desiccator, for some six to eight days, and then reweigh: the loss in weight gives the moisture; this will generally be very small, probably never more than 1%. The dry substance may now be wrapped in filter paper, the whole weighed, and the nitro-glycerine extracted in the Soxhlet apparatus with ether. The ether should be distilled over at least twenty-four times. I have found, however, that results may be obtained much quicker, and quite as accurate, by leaving the dynamite in contact with ether in a small Erlenmeyer flask for some hours,—leaving it overnight is better,—and then decanting, and again allowing the substance to remain in contact with the ether for a few hours and finally filtering through a weighed filter, drying at 100° C., and weighing. This gives the weight of Kieselguhr. The nitro-glycerine must be obtained by difference, as it is quite useless to evaporate down the ethereal solution to obtain it, as it is itself volatile to a very considerable extent at the temperature of evaporation of the ether, and the result, therefore, will always be much too low. An actual analysis of Kieselguhr dynamite gave: moisture, 0·92%; Kieselguhr, 26·15%; and nitro-glycerine, 72·93%, this last being obtained by difference.

### GELATINE COMPOUNDS.

The simplest of these compounds is, or course, blasting gelatine, as it consists of nothing but nitro-cotton and nitro-glycerine, the cotton being dissolved in the glycerine to form a clear jelly, the usual proportions being about 92% of nitro-glycerine to 8% of nitro-cotton, but the cotton is found as high as 10% in some gelatines. Gelatine dynamite and gelignite are blasting gelatines with varying proportions of wood pulp and saltpetre ($KNO_3$), mixed with a thin blasting gelatine. The method of analysis is as follows: weigh out about 10 grms. of the substance, previously cut up in small pieces, and place over calcium chloride in a desiccator for some days. Reweigh; the loss equals moisture. This is generally very small. The dried sample is then transferred to a small thistle-headed funnel which has been cut off from its stem, and the opening plugged with a little glass wool, and round the top rim of which a piece of fine platinum wire has been fastened, in order that it may afterwards be easily removed from the Soxhlet tube. The weight of this funnel and the glass wool must be accurately known. It is then transferred to the Soxhlet tube and exhausted with ether, which dissolves out the nitro-glycerine. The weighed residue must afterwards be treated with ether-alcohol to dissolve out the nitro-cotton.

But the more expeditious method is, perhaps, to transfer the dried gelatine to a conical Erlenmeyer flask of about 500 c.c. capacity, and add 250 c.c. of a mixture of ether alcohol (2 ether to 1 alcohol), and allow to stand overnight. (Sometimes a further addition of ether alcohol is necessary, but not often.) The undissolved portion, which consists of the wood pulp, and potassium nitrate, and other salts, is then filtered off, dried, and weighed.

*Solution.*—The ether-alcohol solution contains the nitro-cotton and the nitro-glycerine, in solution. To this solution add excess of chloroform, when the nitro-cellulose will be precipitated in a gelatinous form. This should be filtered off through a linen filter, and allowed to drain. It is useless to attempt to use a filter pump, as it generally causes it to set solid. The precipitated cotton should then be redissolved in ether alcohol, and again precipitated with excess of chloroform. This precaution is absolutely necessary, as otherwise the results will be much too high, owing to the gelatinous precipitate retaining very considerable quantities of nitro-glycerine. The precipitate is then allowed to drain as completely as possible, and finally dried in the air-bath at 40°C. until it is easily detached from the linen filter by the aid of a spatula, and then transferred to a weighed watch glass, replaced in the oven, and dried at 40° until constant in weight. The weight found, calculated upon the 10 gms. taken, gives the percentage or nitro-cellulose.

The *residue* left after treating the gelatine with ether alcohol is, in the case of blasting gelatine, very small, and will probably consist of carbonate of soda. It should be dried at 40°C., and weighed, but in the case of either gelignite, or gelatine dynamite, this residue should be transferred to a beaker and boiled with distilled water, and the water decanted three or four times, and the residue finally transferred to a tared filter and washed for some time with hot water. The residue left upon the filter is wood pulp. This is carefully dried at 40°C., until constant, and weighed. The solution and washings from the wood are evaporated down in a platinum dish and dried at 100°C. in the oven and weighed. It will consist of the potassium nitrate, and any other mineral salts, such as carbonate of soda, which should always be tested for by adding a few drops of nitric acid and a little water to the residue, and again evaporating to dryness and reweighing. From the difference in weight, the soda can be calculated, sodium nitrate having been formed.

The nitro-glycerine is best found by difference, but if desired, the solutions from the precipitation of the nitro-celloluse may be evaporated down upon the water-bath at 30° to 40°C., and finally dried over $CaCl_2$ until no smell of ether can be detected, and the nitro-glycerine weighed. It will, however, always be much too low. An actual analysis of a sample of gelatine dynamite gave the following result:—

| | Per cent. |
|---|---|
| Nitro-cellulose | 3·819 |
| Nitro-glycerine | 66·691 |
| Wood pulp | 16·260 |
| $KNO_3$ | 12·890 |
| Water | 0·340 |
| | 100·000 |

This sample was probably intended to contain 30% of absorbing material to 70% of explosive substances.

*Gun Cotton.*—Collodion cotton, and other forms of nitro-cellulose, *i.e.*, the Hexa-nitro-cellulose and lower nitro bodies. The first thing upon opening a case of wet gun-cotton, or in receiving a sample from "the poacher," that requires to be determined is the percentage of water that it contains; it is best done by weighing out about 1,000 gms. upon a paper tray, which has been previously dried in the oven at 100°C. for some time and become constant in weight. The tray full of cotton is then placed in a water oven, kept at 100°C., and dried as long as it loses water. The loss gives the percentage of water. It varies from 20 to 30%, as a rule, in what is known as wet cotton.

*The Solubility Test.*—The object of this test is to ascertain, in the case of gun-cotton, the percentage of soluble (penta and lower nitrates) cotton that it contains, or in the case of soluble cotton, the quantity of gun-cotton. The method of procedure is as follows:—5 gms. of the sample, which has been previously dried at 100° C. and afterwards exposed to the air for two hours, is transferred to a conical flask and 250 c.c. of ether-alcohol added. The flask is then corked and allowed to digest, with repeated shaking, for two or three hours. The whole is then transferred to a linen filter, and when the solution has passed through, the filter is washed with a little ether and pressed in a screw-press between folds of filter paper. The sample is then returned to the flask, and the previous treatment repeated, but it will

be sufficient for it to digest for one hour the second time. The filter is then opened up, and the ether allowed to evaporate. The gun-cotton is then removed from the filter and transferred to a watch-glass, and dried in the water oven at 100° C. When it is dry, it is exposed to the air for two hours and weighed. It equals the amount of gun-cotton and unconverted cotton. In the 5 gms. the non-nitrated cellulose must be determined in a separate 5 gms. and deducted.

ESTIMATION OF THE NON-NITRATED COTTON.

However well the cotton has been nitrated, it is almost certain to contain a small quantity of non-nitrated or unconverted cotton. This can be determined thus: 5 gms. of the sample are boiled with a saturated solution of sodium sulphide, and then allowed to stand for forty-eight hours, and afterwards filtered or decanted and again boiled with fresh solution of sulphide, and again filtered, dried and weighed. The residue is the cellulose that was not nitrated. It should be ignited, and the weight of the ash deducted from the previous weight.

ALKALINITY.

Five gms. of the air-dried and very finely-divided sample are taken from the centre of the slabs or discs and digested with about 20 c.c. of $\frac{n}{4}$ hydrochloric acid, and diluted with water to about 250 c.c., and shaken for about fifteen minutes. The liquid is then decanted and washed with water until the washings no longer give an acid reaction. The solution, together with the washings, are then titrated with $\frac{n}{4}$ sodium carbonate, using litmus as indicator.

NITROGEN.

The estimation of the percentage of nitrogen in a sample of gun-cotton or collodion cotton is perhaps of more value, and affords a better idea of its purity and composition than any of the foregoing methods of examination, and taken in conjunction with the solubility test, it will generally give the analyst a very fair idea of the composition of his sample. If we regard gun-cotton as the Hexa-nitro-cellulose $C_{12}H_{14}O_4(ONO_2)_6$, the theoretical amount of nitrogen required for the formula is 14·14 per cent., and in the same way for collodion cotton, which consists of the lower nitrates, that is the penta and tetra-nitro bodies, the theoretical nitrogen is 11·11 per cent. and 6·76 per cent. respectively; so that, if in a sample of gun-cotton the nitrogen falls much lower than 14 per cent., it probably contains considerable quantities of the lower nitrates, and perhaps some non-nitrated cellulose as well ($C_6H_{10}O_5$), which, of course, would also lower the percentage of nitrogen. The most expeditious method of determining the nitrogen in these nitro-bodies is by the use of Lunge's nitrometer, and the best way of working the process is as follows:—Weigh out with the greatest care 0·6 gm. of the previously dried cotton in a small weighing bottle of about 15 c.c. capacity and carefully add 10 c.c. of concentrated sulphuric acid from a pipette. Allow to stand until all the cotton is dissolved. The nitrometer should be of a capacity of 150 to 200 c.c., and should contain a bulb of 100 c.c. capacity at the top, and should be fitted with a Greiner & Friederich's three-way tap. When the nitro-cotton has entirely dissolved to a clear solution, raise the pressure of the nitrometer, so as to bring the mercury in the measuring tube close up to the tap. Open the tap, in order to allow of the escape of any air bubbles, and clean the surface of the mercury and the inside of the cup with a small piece of filter paper. Now close the tap, and pour the solution of the nitro-cotton into the cup. Rinse out the bottle with 15 c.c. of concentrated sulphuric acid, contained in a pipette, pouring a little of the acid over the stopper of the weighing bottle, in case some of the solution may be on it. Now lower the pressure tube a little, just enough to cause the solution to flow into the bulb of the measuring tube, when the tap is slightly opened. When the solution has run in almost to the end, turn off the tap, wash down the sides of the bottle, and add to the cup of the nitrometer; allow it to flow in as before, and then wash down the sides of the cup with 10 c.c. of sulphuric acid, adding little by little, and allowing each portion added to flow into the bulb of the nitrometer before adding the next portion. Great care is necessary to prevent air-bubbles obtaining admission, and if the pressure tube is lowered too far, the acid will run in with a rush and carry air along with it. The solution being all in the measuring tube, the pressure tube is again slightly raised, and the tube containing the nitro-cotton-solution shaken for ten minutes with considerable violence. It is then replaced in the clamp and the pressure relieved by lowering the pressure tube, and the whole apparatus allowed to stand for twenty minutes, in order to allow the gas evolved to assume the temperature of the room. A thermometer should be hung up close to the bulb of the measuring tube. At the end of the twenty minutes, the levels of the mercury in the pressure and measuring tubes are equalized, allowing about three inches of the sulphuric acid to one inch of mercury, and the final adjustment obtained by slightly opening the tap on the measuring tube (very slightly), after first adding a little sulphuric acid to the cup, and observing whether the acid runs in or *moves up*. This must be done with very great care. When accurately *adjusted, it should move neither way*. Now read off the volume of the NO gas in c.c. from the measuring tube. Read also the thermometer suspended near the bulb, and take the height of the barometer in millimetres. The calculation is very simple.

*Example Collodion Cotton.*

·6 gm. taken. Reading on measuring tube = 114·6 c.c. NO.
Barometer, 750 m.m. Temperature 15° C.
Since 1 c.c. NO = 6272 gm. N.,
and correcting for temperature and pressure by the formula
$760 \times (1 + d^{t2})$ ($d = \cdot 003665$) for temperature of 15° = 801·78;

$$\text{then } \frac{114\cdot6 \times 100 \times 750 \times \cdot6272}{801\cdot78 \times \cdot6} = 11\cdot22 \text{ per cent. N.}$$

Theory = 11·11 per cent. for $C_6H_8(NO_2)_2O_5$.

The following is the analysis of a good sample of collodion cotton suitable for the manufacture of blasting gelatine, etc.:

| | | |
|---|---|---|
| Soluble cotton | = 99·118 per cent. | =Nitrogen=11·67 per cent. |
| Gun cotton | = 0·642 ,, | |
| Non-nitrated cotton | = 0·240 ,, | Total ash = 0·25 ,, |

The nitrogen in nitro-glycerine may, of course, be determined by the nitrometer, but in this case it is better to take a much smaller quantity of the substance; from ·1 to ·2 gm. is quite sufficient. This will give from 30 to 60 c.c. of gas, and therefore a measuring tube without a 100 c.c. bulb must be used.

*Example.*

·1048 gm. nitro-glycerine taken; Barometer, 761 m.m.; Temperature, 15° C.; gave 32·5 c.c. NO.

$$\frac{32\cdot5 \times 100 \times 761 \times \cdot6272}{801\cdot78 \times \cdot1048} = 18\cdot46 \text{ per cent. N.}$$

Theory for $C_{12}H_{14}O_4(ONO_2)_6$ = 18·50 per cent.

## PROCESSES FOR THE EXTRACTION OF ALUMINIUM FROM 1886 TO 1890.

BY H. N. WARREN.

*(Specially contributed.)*

INVENTIVE genius has for many years been actively engaged in endeavouring to produce many of the staple articles used in the arts and manufactures at a reduced price, but unfortunately there have been many failures. Although so much has been done in endeavouring to reduce the cost of producing the caustic soda of the alkali manufacture, alcohol for the distiller by synthesis, or again the replacement of cane sugar by saccharine, and though many works have been compiled detailing the experiments which have from time to time been made in order to solve these problems, nevertheless these works show only too clearly the numerous gaps which still remain to be filled ere many of these processes can be brought to a satisfactory issue. The production of aluminium in the metallic state is a problem which perhaps has occupied the attention of a great number of investigators during the past few years; more especially so since it is anticipated that aluminium by reason of its peculiar properties is likely to become the metal of the nineteenth century. It is the author's object, therefore, to instance a few experiments which have been made by himself, and, in conjunction with others, to elucidate, if possible, the best method, from a commercial point of view, of extracting aluminium. The mineral to which chief attention was devoted was cryolite, and it is to this that the following remarks will be as closely as possible confined. One of the earliest experiments was in regard to the action of amorphous silicon upon cryolite, and although the results obtained were negative these experiments indicated that a kindred substance possessing, however, an acid reaction, and less stable than amorphous silicon, would be a suitable medium, and in consequence aluminium fluoride itself was employed.

Amorphous silicon thrown into melted fluoride of aluminium at a high temperature reacts according to the following equation, yielding aluminium and silicon fluoride.

$$4AlF_3 + 3Si = 4Al + 3SiF_4.$$

But unfortunately the aluminium, although actually formed, being in contact with silicon fluoride, is immediately decomposed, yielding an alloy of silicon and aluminium containing about 70% of the former.

A second series of experiments was then started with a view to investigating the results obtained by injecting the vapour of ammonia, ammonia oxalate, and the more volatile metals into melted cryolite. The effect of melted copper upon fluorides with the addition of the hydrides of antimony, arsenic, sulphur, and selenium as reducing agents

were also tried with a view to producing aluminium bronze. Further experiments were made for the production of ferro-aluminium by the action of metallic manganese in the presence of iron, ferro-manganese, and spiegeleisen also being employed for the same purpose.

Further as to the production of aluminium from the anhydrous chloride some experiments were made with regard to the production of the same for this purpose. A mixture of barium chloride and soda-alum, which was thoroughly incinerated, was employed, magnesium being introduced in order to replace the aluminium.

Phosphides and sulphides have also been largely experimented with, while arsenic was found to produce a most striking reaction in regard to its behaviour with aluminium. Absolutely pure aluminium was taken, melted at a red heat; metallic arsenic was then thrown on to the surface of the molten metal, and thoroughly incorporated by stirring, so as to impregnate the whole mass. As a result a brittle arsenide of aluminium was formed, but, strange to say, on further raising the temperature, this compound is completely decomposed again, even when out of contact with the air. So complete is this decomposition that, after subjecting the arsenide to the higher temperature, no arsenic hydride could be produced by the action of dilute acid upon the resulting product. This reaction was at one time considered to be of value for the separation of aluminium from alloys containing the same; but quite a different phenomenon is observed in the case of alloys, an arsenical regulus being in every case readily formed. In this respect aluminium is somewhat analogous with the action of metallic copper when in contact with the sulphide of that element, the same peculiarities of behaviour presenting themselves in the latter case when impurities are present.

The action of bromides and iodides, and also the treatment of the oxide at different temperatures in contact with reducing gases, have also been the subject of experiment. Moreover, various other methods have been patented for the production of aluminium, including, amongst the more prominent, a process which is based upon the action of common salt upon clay in the presence of zinc; likewise another, which proposes to heat to an enormous temperature a mixture of aluminium, petroleum, and sulphuric acid, after which some fabulous metal is introduced, which, it is stated, brings about the reduction of the aluminium. Feasible as these processes may appear, there is one fact which is curiously persistent, and that is, easy as it seems from all accounts to obtain metallic aluminium cheaply, the current price of this article continues to remain without any material change.

Another matter of considerable interest is electro-plating with aluminium, and here again further difficulties present themselves. The cyanide of the metal undoubtedly seems the most suitable compound to use for this purpose, but to procure the same is as difficult a matter as preparing the metal itself. The cyanide, although stated by many works on chemistry to be unknown, is by no means so; for when a rod of metallic aluminium is connected with the positive pole of a compound battery, a platinum plate furnishing the negative pole, and the extremities of the two electrodes are brought in contact with a strong solution of hydrocyanic acid, aluminium cyanide is obtained in solution. Unfortunately it is, however, completely decomposed at a temperature below 100° C. In lieu, however, of the cyanide itself, attention is being directed to the use of sulphocyanides, ferrocyanides, and many other organic and inorganic compounds of aluminium, with a view to obtaining the most suitable compound for electro-plating purposes. The matter as yet being a subject which affords scope for a great deal of experimental work, the outcome of which remains to be disclosed in the future.


## NOTICES.

### LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of
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MR. JOHN HEYWOOD,
2, Amen Corner,
Paternoster Row, E.C.,
On usual trade terms.

### FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed* MONEY ORDER is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.


# Correspondence.

**** We do not hold ourselves responsible for the opinions expressed by our correspondents.*

## *ANSWERS TO CORRESPONDENTS.*

"MASHTUN" (London).—Thanks for your correction *vide* this week's issue.

J. W. L.—It is to be seen in any catalogue of apparatus. We have sent you a description by post.

L. & Co.—Your wishes have been complied with.

W. B. & Co. (Rotterdam)—Thanks for information. We are always pleased to hear of such items.

H. S.—Acid sulphate of potassium is the best thing. Sand, unless very fine, is objectionable.

H. G. J.—About 81·5 per cent. as a rule. It varies however..

P. H.—In about a month, we hope.

## THE PROFITS OF FOREIGN ANILINE COMPANIES.

*(To the Editor of the Chemical Trade Journal.)*

SIR,—In your issue of 20th ult. you publish a letter headed "The Profits of Foreign Aniline Companies," and subscribed to by "Aniline," of London. The letter refers to the enormous profits made by aniline colour works abroad, mentioning as instances the Badische, Meister Lucius, and Bayer, and says these profits are maintained by a "judicious working" of the British Patent Law. What an idea! If "Aniline," of London, knew anything at all about the aniline companies abroad he would scarcely write in such a manner. He seems to think England is the only country in the world, at all events as regards aniline colours; but he is quite mistaken. The foreign aniline companies know of several other small places where anilines are used, such as America, Germany, France, Russia, Italy, China, &c., and it is surely a mistake to ignore them. The Eastern markets are supplied with *enormous* quantities of anilines by the foreign aniline companies, and deserve special recognition. Most people of course will know that the profits "Aniline" refers to are only obtained by a gigantic trading with the whole world, and that only a tithe of them comes out of the pockets of poor John Bull. The statement, therefore, that those profits are maintained by a "judicious working" of the British Patent Law is "obviously" incorrect, even if the British Patent Law is capable of being "judiciously worked" in the sense suggested, which is hardly likely.

The British Patent Law is to all intents and purposes the same as the Patent Law of every other country. It protects and upholds *bona-fide* patents by whomsoever patented, and this is probably where "Aniline's" grievance lies.

He either wants to see the foreign inventor made lawless in England, or he desires that patent laws should be done away with altogether. Of course it would be very well for "Aniline" and others, who might envy people their inventions, if all foreign chemists would exercise their brains with the view of making inventions, and if those who succeeded would make a present of such inventions as turned out profitable to the British aniline manufacturers; but this is hardly likely to happen. As things are at present, so far as "John Bull" is concerned, useful and desirable articles are put upon the British market by foreign aniline companies, which John Bull in his wisdom buys—finding he cannot get them from his own countrymen. These articles, it is true, are mostly patented, though not only in England, but also in America, Germany, France, Russia, Italy, &c., and why shouldn't they be? "Aniline" must remember that these articles to be patented must be inventions, and that in order to get them patented the novelty of the inventions must be very conclusively proved. When they are patented, and happen to be infringed, the patentees very naturally get the ablest lawyers they can to prove the infringement and maintain the patent; but this is a very pardonable offence.

If "Aniline" envies the foreigners their inventive genius, let him see if he cannot also invent some new colours.

It is by such study, at great cost, and by indomitable energy and perseverance, that the foremost place as aniline colour manufacturers has been gained by the *Germans*, who are not likely to be ousted from that position if they can help it.

The British Patent Law has had nothing to do with the progress they have made by their many inventions, and *if it has helped* them to a *part* of their profits it has only *justly* done so. Of course if that law is defective, by all means put it right; but the idea that its defects have "maintained the profits" of the aniline colour works abroad is very far fetched.

I am, yours, &c.,

MAGENTA

# Trade Notes.

Errata.—Owing to a printer's error we stated in our last issue that the machine for the automatic production of bleach was the patent of Messrs. Mills. This should have been Messrs. J. M. and A. Milnes, whose place of business is at 110, Cannon-street, E C.

Depression in the Welsh Steel Trade.—The men employed in the South Wales steel trade have received notice from their employers that all contracts will terminate at the end of the month, and afterwards the works will be run from day to day.

Recent Trade Mark.—"Standard Domestic Ammonia," and flag and staff with device of three arrows; for domestic ammonia, a liquid preparation for water-softening. By the Standard Ammonia Co. (Limited), Ordnance Wharf, East Greenwich. The essential particular is the combination of devices. 165,092.

Our Trade in Chemicals with U.S.A.—During July last alkali to the extent of 195,501 cwt, was imported into the United States from Great Britain, as compared with 237,392 cwt in July, 1891. Bleaching materials to the extent of 58,052 cwt. were also procured from Great Britain, as against 80,141 cwt. in the same month of last year.

A Geological Curiosity.—An extraordinary grotto, which is exciting the interest of geologists and mining engineers, was recently revealed, says the *Times* correspondent at Paris, by an explosion during the progress of the ordinary work in a quarry at Taverny. This subterranean gallery, with walls polished as if by water, is some 1,500ft. in length, and ends in a great chamber about 40ft. in diameter and 6ft. in height. Scientific men are busy in conjectures as to whence and when this watercourse which it would appear once dug this cavity came.

Davis's Chlorine Processes, Limited.—On Wednesday of this week, the second ordinary general meeting of the shareholders was held at the company's works, Lostock-Gralam. The chairman, in a brief speech, pointed out how much had been done in the construction of the works since last November when the building commenced, and that the sulphuric acid plant had been in operation for nearly two months; the chlorine plant was now being charged, and would be in operation in a few days, while the caustic plant was only waiting for the accumulation of sufficient saltcake from the chlorine department to enable it to proceed. The report and balance sheet for the year ending June 30th was presented and duly passed. The retiring directors, Messrs. W. Raby and W. Whiston, were re-elected, and Messrs. Burgess, chartered accountants, were appointed auditors. The meeting was very well attended, and the shareholders, one and all, expressed their extreme satisfaction at all they had seen.

Alleged Nuisance at Sandilands Chemical Works.—At a special meeting of the Public Health Committee of Aberdeen Town Council held last week, Mr. Kenneth Cameron, sanitary inspector, reported that during the past two weeks serious complaints have been made as to a nuisance said to arise from Sandilands Chemical Works. The smell has, he says, recently been of a very obnoxious kind, and on one occasion several of the gas works employees sickened on account of the offensive odour coming from the chemical works. The medical officer of health is decidedly of opinion that the nuisance is of such a character as to be injurious to health. Since receiving the complaints Mr. Cameron had communicated with the Messrs. Miller, of Sandilands, and had a personal interview with two of the members of the firm. The result was that they undertook to adopt immediate measures for preventing a recurrence of the cause of the complaints. Notwithstanding this, however, complaints are still received. He added that he served notices on the Messrs. Miller on the 22nd and 24th ult., requesting an abatement of the alleged nuisance; and, as they had failed to comply with these and to carry out the undertaking given to him personally, he considered it his duty to bring the matter under notice of the committee in order that they might give such directions as might be considered proper. Two letters on the subject were submitted from the Messrs. Miller. The committee agreed to report the matter to the procurator-fiscal.

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

There is not much to report in the tar and tar products market. Tar is going at a very low figure in consequence of the continued depression of the benzol market; 90's benzol is to-day valued for 1s. 7d. and 50—90's about 1s. 2d. to 1s. 3d. There has been a run upon carbolate of soda and carbolate disinfectants in general and the prices of these articles are well maintained. Anthracene remains much as quoted in our last report, 30% A being worth 9½d. to 10d. and 30% B 6½d. to 7d. Pitch remains firm.

The tone of the sulphate of ammonia market is, if anything, steadier, and prices are well maintained. The demand, although checked to some extent by the cholera scare, shows nevertheless a slight improvement and a better demand may be anticipated when this epidemic is stamped out in Hamburg. To-day's value of sulphate may be stated as £9. 17s. 6d. at all the ports, and there is not too much offering, although it is stated that £9. 16s. 3d. has been accepted for Beckton, Hull, and Leith. London outside makes are valued to-day for £9. 17s. 6d. Nitrate of soda is rather weaker, some cargoes at port of call being pressed for sale, and 8s. may possibly be accepted.

## REPORT ON MANURE MATERIAL.

There has been more enquiry during the past week, and a moderate business has been done in phosphatic material, but prices remain without quotable alteration.

The nearest value of Florida phosphate rock 75/80% is 8½d. per unit in cargoes to U. K.; 8¾d. to 9d. Continent. Peace River rock offers at 7½d. per unit, and Florida land pebble rock 60/65% may be had at about 7d. per unit in cargoes to U.K. Hot-air dried Bull River rock is quoted 7d. to 7¼d. per unit, and South Carolina land rock 7d. Continental descriptions offer freely, and for good lines some concession would likely be made on current quotations. Owing to the partial deadlock in trade at the Continental ports, bone ash is difficult to sell, and values cannot be quoted over £3 7s. 6d. to £3. 10s., according to position, nett Hamburg terms; less would probably have to be taken for any cargoes arriving at port of call.

A large cargo of River Plate bones for shipment has changed hands, it is understood, at a shade under £4. 5s. per ton; but cargoes of handy size would now fetch fully £4. 5s., delivered good U.K. port. Crushed Kurrachee bones for shipment offer at £4. 2s. 6d., ex quay Liverpool, but no business reported. Sales of Bombay bone meal have been made at £4. 5s., delivered terms, for shipment, but the price has since been refused. On spot market price is £4. 2s. 6d. for inferior; £4. 7s. 6d. for good, and £4. 10s. to £4. 12s. 6d. per ton, ex store Liverpool, and business has been done at these prices. Common grinding bones are neglected, and price ex quay Liverpool cannot be quoted over £3. 12s. 6d. per ton.

The nitrate market is very quiet; Continental buyers for the present holding off almost altogether, and several cargoes arrived at port of call have been ordered away to be stored for sellers' account. Nearest value of handy cargoes arrived at coast is 8s. 1½d. to 8s. 3d., according to test; but large cargoes are not worth over 8s. for ordinary quality. Later shipments can hardly be quoted; sellers, in anticipation of improvement in Continental demand when the cholera scare passes away, refusing to come down to something like prices of arrived or near at hand cargoes, and buyers being in no mood to pay anything like prices recently current, spot value is 8s. 3d. for ordinary quality, and 8s. 6d. for refined.

There is nothing special to notice in miscellaneous manure material. Prices for superphosphates for the coming season seem to be scarcely fixed yet for home consumption.

## MISCELLANEOUS CHEMICAL MARKET.

The demand or all products of the alkali trade continues exceedingly brisk. Soda ash and bleaching powder are extremely scarce. The latter is quoted for October-December delivery £9. 7s. 6d. nett per ton, f.o r. makers works, and £10. 5s. nett f.o.b., hardwood casks. All ordinary qualities of Leblanc ash are fully sold and nothing obtainable for near delivery. Ammonia ash is also in strong request; Prices are 1⅜d. per degree f o.b. Caustic soda is in the same position as for some time past and prices are as usual. Soda crystals are in good demand and firm in price. Chlorate of potash has become scarce for early delivery, and price has advanced to 7d. Chlorate of soda 8d. Recovered sulphur steady at £5. per ton f.o.r. makers' works. Roll sulphur £6. 15s. per ton f.o.b. Brown acetate of lime rather firmer for forward delivery, and spot value about £6. per ton at usual points. Grey acetate of lime £10. 15s. per ton. White sugar of lead without special demand and price unaltered. Acetate of soda £18. to £18. 10s. per ton c.i.f. Borax firm at 29s. for English refined. Yellow prussiate of potash 10¼d. to 10½d. for British makes. Sulphate of copper gives no sign of improvement in value meantime, and quotations rule from £15. to £15. 10s. f.o.b. White powdered arsenic decidedly firmer, and more business doing at £12. 5s. to £12. 10s. nett per ton. Demand still continues brisk for all kinds of carbolic acid, and crystals

lly advanced in the past week. The pressure, however, immediate deliveries, and important concessions are made nd later deliveries. Aniline oil and salt are without any change in prices. Muriate of ammonia is still depressed.

## THE METAL MARKETS.

, WEDNESDAY.—Pig iron dull. Scotch warrants closed . cash. Middlesbrough 40s. 6d. cash, and Hematite . Copper quiet but steady: Chili bars, G.O.B.'s and sed at £44. 5s. cash, and £44. 15s. to £45. 2s. 6d. . Tin quiet: Straits closed at £93. to £93. 10s. cash 6d. to £93. 12s. 6d. three months. Australian, £93. 10s. ish ingots, £95. 10s. to £96. Lead, weak. Spanish, l.; English, £10. 5s. to £10. 7s. 6d. Quicksilver: ands, £6. 9s. 6d., second hands, £6. 7s. *Copper shares* n on whole: Cape, 1½ to 1⅝; Copiapo, 2 to 2⅛; to 3 7/16; Mason and Barry, 2 7/16 to 2 9/16; Rio Tinto, 14 9/16 to is, 4 7/16 to 4 9/16; Namaqua, ⅝ to ¾; Panulcillo, 5/16 to 7/16.

HAMPTON, WEDNESDAY.—The chief feature of to- was the continued strength of pig iron. Recent sales have l and Staffordshire makers' books three months forward, re now advanced. Northampton and Derbyshire sorts, d here; Lincolns, 47s. 6d. to 48s.; Staffordshire common, ; and all mines, 65s. Finished iron dull, but bars Sheet iron slow demand. Best bars £8., medium £6. 15s., n £5. 15s. Sheets, singles, £6. 15s., and upwards; 5s. and upwards. Hoops, £6. 10s.

W, WEDNESDAY.—Market steady, with fair business. at 42s. 1d. and 42s. 2d. cash; closing with buyers at cash and 42s. 3½d. one month, sellers ask ½d. more. gh closes with buyers at 40s. 7½d. cash; sellers, ask ematite closes with buyers at 50s. 3d cash; sellers ask 51s.

## RPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

alm oil has been variable, as much as £22. having been s transit. The market is now firm and Benin has been 5s. per ton, and Accra £20. Olive has been in active ng the week. Sales of Candia having been made at d Neapolitan at from £36. to £38. The market is steady gh the demand is quieter. Linseed has experienced a , but is steadily held at 18s. 9d. to 20s. per cwt. in export a moderate business passing. Cottonseed: Liverpool n in tone but the price continues at 18s. 6d. American 6d. to 24s. per cwt. Rape; A quantity of refined Stettin l by auction during the week at 25s. 9d. to £26. 3s. per tor oil the market is rather quiet. Good seconds Calcutta aker at 2⅜d. to 2 7/16d. per lb., and first pressure French 2 9/16d. Tallow is steady and unaltered in price. Resin, offered at 3s. 9d. per cwt., there being a fair enquiry at 4s. 3d. to 6s. is quoted for medium and 6s. 6d. to 9s. for of turpentine show no signs of recovering, and values essen and it is now offered at 21s. 3d. per cwt. Petroleum: nerican 5d. to 6¼d., according to quality. Russian to 4½d. per gallon.

S continue very steady, without any alteration to report. fordshire, common, £10., medium, £12., best, £15.; common, 40s., medium, 50s., best, 60s. Welsh, best, s, 50s., and common, 18s.; Irish, Devonshire, 40s. rench, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. rkish quiet. Devonshire, 50s. to 55s. White lead, l oxide of zinc unchanged. Venetian red, £6. 10s. to lt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, ffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: .; medium, £10.; finest, £20.

## E LIVERPOOL MINERAL MARKET.

t is very steady. Manganese: Arrivals very small on olera. Stocks further reduced and prices rising. The t ore are practically nil. Borate, 7d. per lb.; sulphate oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, teady. Magnesite (raw lump): There is more offering, re easier. Raw ground £6. 10s., and calcined £12. 10s. h Hill brand) in good demand; lump 20s., seconds 16s., s. French chalk: Arrivals have been larger, with a brisk demand. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump scarce, and brings full prices at 90s. to 95s.; nuts, 70s. to 80s.; whilst finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore freely offered; prices easy; Bilbao, Irish, and Cumberland easier. Santander and manganiferous quiet. Emerystone: Best quality inquired for. No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal firm. Chrome ore: Good demand for best qualities for export. Antimony ore and metal quiet; prices better. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. 10s. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese steady, and prices are unchanged. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady; common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) steady; finest quality 22s. to 23s.

## TYNE CHEMICAL REPORT.

TUESDAY.

There is continued excitement as regards bleaching powder, and the case of cholera on the Tyne yesterday has further tended to advance the price. Sales have taken place at £10. per ton, and £12. per ton is now asked for September and £11. per ton. for October. Caustic soda in fair demand. Other products unchanged.

Bleaching powder, softs, £10. per ton, and hards, £12. per ton, 5s. per ton extra for hardwoods; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £4. 17s. 6d. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton, in 10 ton lots; silicate of soda, 75° Tw. £3. per ton, 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per ton; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 7d. per lb. less 6%; pearl hardening, £3. 10s. per ton nett; pure white sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta crystals, £19. per ton; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; hydrate of barium, £11. per ton.

South Durham salt 9s. 6d. and 10s. per ton f.o b. Tees net.

Coals: Trade is steady. For best steam there is still a good demand at about 10s. 6d. per ton f.o.b.; second qualities at proportionately lower prices. Small steam plentiful, at 3s. 9d. and 4s. 3d. per ton. Gas coal steady, at 8s. 3d. and 8s. 6d. per ton. Manufacturing and bunker coals quiet. Coke: There is fair enquiry, at from 15s. to 16s. per ton f.o.b.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

A grave symptom, as denoting the hard straits to which the Scottish mineral oil industry is gradually being reduced, is the present position of the Burntisland Oil Company, not so long ago in the front rank, and returning a 20 per cent. dividend to its ordinary shareholders This concern some few months ago raised a flag of dire distress in an appeal to the shareholders and general investing public to subscribe for some £70,000. of new debenture stock, without which it would be impossible to keep moving for any length of time. This appeal, as might have been expected, has been very coldly met, and there has just been tabled. in consequence, a motion for going into liquidation forthwith. And liquidation accordingly it must be, except for some miracle of finance which it is futile to look for. The paraffin products market is still for the most part inert and foreboding. Burning oils show some action, but the call is far from being up to the average of the season, and large storages have yet to be placed.

In the general chemicals market the feature is the sharp advance of bleaching powder—not unanticipated. Chlorate of potash is also dearer, but otherwise the position is little changed, quietness prevailing.

Sulphate of ammonia has been in improved demand for prompt, and in one case at least £9. 17s. 6d. has been paid.

Chief prices current are:—Soda crystals, £2. 17s. 6d., nett Tyne; alum in lump, £5. 10s., nett Glasgow; soda ash, 1⅜d., less 2½%, Tyne; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. nett Liverpool; refined alkali, 1⅝d., less 2½% Tyne; bleaching powder, £9. 5s. to £9. 10s. nett Tyne; saltcake, 36s. 6d.; borax, English refined, £29., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 6¾d., less 5% any port; nitrate of soda, 8s. 3d. to 8s. 6d.; sulphate of ammonia, £9. 15s. to £9. 16s. 3d. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £14. 10s. less 5% Liverpool; paraffin scale (hard), 2$\frac{15}{16}$d., and soft 2$\frac{13}{16}$d. to 3d. per lb.; paraffin wax, 120°, semi-refined, 3⅝d. to 4d.; paraffin spirit (naphtha), 7d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower); ditto (lubricating), 865°, £3. 5s. to £3. 15s., 885°, £4. 10s. to £6., and 890/895°, £5. to £7. Week's imports of raw sugar at Greenock were 19,336 bags.

## THE COPPER MARKET.

Messrs. Harrington & Co., in their fortnightly report, dated Liverpool, September 2nd, 1892, say:—

The Chili Charters for the past fortnight are advised as 900 tons, which with 1,000 tons for the previous fortnight makes 1,900 tons for the month, thus making the total charters since 1st January, 15,050 tons. Exchange 17d.

The past fortnight has again been dull, and sales of G.m.b.'s and G.o.b.'s have only been on a limited scale; prices have not fluctuated much, but have advanced a little, and have nearly regained what was lost on the previous fortnight. We close to-day with buyers over at £44. 8s. 9d. cash, and £44. 18s. 9d. three months.

The total stocks in Liverpool, Swansea, London, and Havre show a decrease of 2,513 tons for the fortnight, but with an increase of 2,493 for the previous fortnight makes a decrease of 20 tons for the month.

The stocks include about 4,700 tons of copper sold, but not yet delivered to smelters.

The visible supply shows a decrease of 1,975 tons for the fortnight, but with an increase of 2,616 tons for the previous fortnight, makes a total increase of 641 tons for the month.

The total deliveries for the fortnight are 5,335 tons, which, with 3,012 tons for the previous fortnight, makes a total of 8,347 tons for the month.

The present stock of English G.M.B.'s in warehouse, Liverpool and Swansea, is 2,499 tons, against 2,667 tons on the 17th ult. The delivery in Liverpool and Swansea was 283 tons, but 115 tons being added to the Swansea stock makes the decrease 168 tons for the fortnight.

Refined and manufactured sorts are steady. Quotations being:—Tough cake £47. to £47. 10s., best select £48. 5s. to £48. 15s., Indian sheets £52. 10s., strong sheets £56., and yellow metal sheets 4⅞d. per lb.

The sales of furnace material comprise—at Liverpool: 100 tons ordinary Montana matte, at 9s. per unit; 1,300 tons argentiferous Anaconda and 600 tons argentiferous Montana matte, both on private terms. At Swansea: nil. At Dunkirk: 300 tons of Boleo matte, on private terms.

# New Companies.

The Midland Fuel Co., Limited.—This company was registered on the 30th ult., with a capital of £20,000., in £10. shares, for the adoption and carrying into effect an agreement dated August 22, 1892, and made between Mr. Samuel Butler of the one part, and the Trustees for the company of the other part, to acquire the letters patent, dated April 12, 1884, granted to the said Mr. Samuel Butler for improvements in machinery or apparatus for heating and mixing the materials employed in the manufacture of artificial fuel, and to carry on at Birmingham or elsewhere, the trade or business of makers, manufacturers, buyers, sellers, and shippers of patent and other fuel. The subscribers are:—

| | Shares. |
|---|---|
| C. Butler, patent fuel manufacturer, Bristol | 1 |
| W. H. Butler, chemical manufacturer, Bristol | 1 |
| J. B. Butler, chemical manufacturer, St. George, Bristol | 1 |
| A. B. Brain, gentlewoman, Bristol | 1 |
| W. H. R. Brain, Woodstock-road, Bristol | 1 |
| T. Butler, chemical manufacturer, Cotham, Bristol | 1 |
| M. A. Butler, gentlewoman, Sneyd Park, Bristol | 1 |

The New Heather Colliery, Limited.—This company was registered on 26th ult., with a capital of £10,000., divided into 1,000 shares of £10. each, to acquire the goodwill of the business carried on by the executors of the late Henry Slater Woolley, at Heather and Ibstock, Leicester, as colliery owners, generally to carry on the trade or business of colliery proprietors, coke manufacturers, miners, etc. The subscribers are:—

| | Shares. |
|---|---|
| A. J. Sellars, Copthall House, London, E.C., chartered accountant | [illegible] |
| T. Thrutchley, Knutsford, merchant | [illegible] |
| J. B. Slack, 31, Queen Victoria-street, London, solicitor | [illegible] |
| F. R. Woods, Wandsworth, secretary to public company | [illegible] |
| J. A. W. Blenkhorn, 53, Page-street, Westminster, gentleman | [illegible] |
| Ernest Hutchings, Larcombe, St. Albans, gentleman | [illegible] |
| H. J. Higgs, 107, Cadogan-terrace, Victoria Park, engineer | [illegible] |

Robert Dempster and Sons, Limited.—Registered on the 25th ult., by T[illegible] England, Halifax, with a capital of £30,000., divided into 3,000 shares of £10. Object: to acquire the business of gas, chemical, and hydraulic engineers, c[illegible] on by Robert Dempster and Sons, Limited (a company incorporated on Aug[illegible] 1887), at the Rose Mount Works, Elland, Yorkshire, and generally to carry o[illegible] business in its various branches. The subscribers are:—

| | Sha[illegible] |
|---|---|
| Alexander Dempster, 6, Coleridge-street, Halifax, engineer | [illegible] |
| Albert M. Dempster, 6, Coleridge-street, Halifax, electrical engineer | [illegible] |
| C. T. Jacobs, Charles-street, Elland, cashier | [illegible] |
| Wm. Edgar Berry, The Hollies, Elland, draughtsman | [illegible] |
| Richard Henry Fletcher, 122, Huddersfield-road, Elland, boiler maker | [illegible] |
| Sherwood Tetley, 120, Huddersfield-road, Elland, pattern maker | [illegible] |
| Wm. Thomas Smith, 3, Rosemount-terrace, Elland, ironfounder | [illegible] |

The Southwold Salt Works, Limited.—This company was registered [illegible] 29th ult., with a capital of £2 000., in £1. shares, to acquire and take over as a [illegible] concern the business of salt manufacturers carried on by the Southwold Salt [illegible] Company at Southwold, and the business of sauce manufacturers carried [illegible] Messrs. Barclay, Holland & Co., at Southwold.

# Gazette Notices.

### PARTNERSHIPS DISSOLVED.

Bernstein and Lenty, Crutchedfriars, City, drug and chemical merchants.

G. Capon and H. Heaton, the younger, under the style of Capon, Heat[illegible] Co., Birmingham and Lifford, manufacturers of india-rubber goods.

H. P. Stokes, P. H. Monypenny, H. Goodson, A. Salf, and C. J. Mau[illegible] under the style of the British and Continental Manufacturing Co., late [illegible] Garden-row, City-road, E.C., now London Colney, near St. Albans, [illegible] extractors from leather, grease refiners, and leather merchants; as far as r[illegible] H. P. Stokes, P. H. Monypenny, H. Goodson, and A. Sale.

E. Watkins, T. F. Hawkins, and D. R. Thomas, under the style of Cousins, T[illegible] and Co., Oxford, chemists and druggists.

W. Docker, F. D. Docker, and L. C. Docker, under the style of Docker [illegible] Birmingham, varnish manufacturers, as far as regards W. Docker.

W. G. Taylor and A. A. Sommerville, under the style of Taylor, Somm[illegible] and Co., Queen Victoria-street, City, Edinburgh and Manchester, general [illegible] making material dealers.

### BANKRUPTCY ACTS, 1883 and 1890.

#### Receiving Order.

Phillips, William Henry, Glastonbury, late Exeter, gas engineer.

#### Adjudications.

Collins, James, Hove, electrical engineer.

Phillips, William Henry, Glastonbury, late Exeter, gas engineer.

# The Patent List.

*This list is compiled from Official sources in the Manchester Tech[illegible] Laboratory, under the immediate supervision of George E. Davi[illegible] Alfred R. Davis, who report professionally upon the value of Che[illegible] Patents.*

### APPLICATIONS FOR LETTERS PATENT.

**Regulating Air and Steam for Smoke Preventing Furnaces.** [illegible] Broadbent. 15,095. August 22.

**Electrolytic Production of Caustic Soda, Potash, and Hydrochloric** [illegible] by Treatment of Chlorides of Sodium and Potassium. J. P. Roo[illegible] V. Lapeyre, and U. Grenier. 15,113. August 22.

**Artificial Stone.** J. E. Keseling and C. Fuchs. 15,147. August 23.

**Extraction and Lixiviating Apparatus.** C. M. King. 15,181. August [illegible]

**Electrolytic Apparatus.** H. M. E. Andreoli. 15,197. August 23.

**Smoke Consuming and Fuel Economising Furnaces.** J. Boyes a[illegible] Kelsall. 15,205. August 24.

**Carburetting Coal Gas.** F. G. Birchall. 15,217. August 24.

**Improvements in the Manufacture of Portland and Similar Cement[illegible]** C. Sellars. 15,221. August 24.

**Improved Construction of Alembics.** V. J. Kuess and C. H. J. Dom[illegible] 15,244. August 24.

facture of Greenish Blue Mordant Dyeing Colouring Matters. J. Johnson. 15,246. August 24.
rocess for the Extraction of Gold, etc. J. W. Sutton. 15,248. Aug. 24.
ming Smoke and Saving Fuel. E. J. Rothwell. 15,262. August 25.
sting Apparatus for Ascertaining the Frictional Co-Efficient of Oils d Fats. George Thomas. 15,270. August 25.
ction of Carbonic Acid Gas. W. Stones and R. Bardsley. 15,275. gust 25.
Preparation for Purifying Sewage, etc. C. A. Burghardt. 15,285. gust 25.
g Wool with Sulphonic Acids of Alizarine Colouring Matters. O. ray. 15,310. August 25.
Alizarine Colouring Matters. O. Imray. 15,311. August 25.
Electric Batteries. D. Federman. 15,319. August 25.
New Sulpho Acids and Salts thereof. H. E. Newton. 15,321. August 25.
New Mordant Dyeing Colouring Matters. J. Y. Johnson. 15,325. Aug. 25.
Obtaining Ammonia, Hydrochloric Acid, and Chlorine from Ammonium Chloride, and also Obtaining Chlorine from Hydrochloric Acid. F. Bale. 15,346. August 26.
Rust Preventing Composition. J. W. Longbottom and A. Sharman. 15,348. August 26.
Electro-Chemical Process of Treating Pyrites. H. C. Bull. 15,356. Aug. 26.
Manufacture of Azo-Colouring Matters. Read Holliday and Sons and K. B. Elbel. 15,386. August 26.
New Colouring Matters. H. E. Newton. 15,438. August 27.
Black Azo-Colours on Fibres. H. E. Newton. 15,439. August 27.
Treating Vulcanised India-rubber. J. M. Raymond. 15,452. August 27.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending August 27th.*

**te of Lime—**
tates, 359 pkgs. Johnson & Hooper

**te of Soda—**
ce, 72 pkgs. T. Palmer

**c Acid and Acetone—**
nd, 102 pkgs. A. & M. Zimmermann

**ne—**
nd, 1 pkg. G. Meyer & Co.
14 A. & M. Zimmermann

**l—**
ce, 100 c. Arnati & Harrison

**ina Sulphate—**
any, 100 pkgs. Tough & Henderson

**ony—**
gal, 50 t. J. Bamber
any, 44 F. Williams
42 Major & Field
10 H. R. Merton & Co.
ey, 6 Bank of N. S. Wales
aland, 17 Major & Field

**m Chloride—**
any, 23 pkgs. Petri Bros.

**tes—**
any, 19 cks. P. Jantzen
nd, 113 T. & W. Farmiloe
22 W. Fenton & Co.
any, 22 Harrison & Co.
19 H. Lambert
ium, 82 A. Zumbeck & Co.
nd, 92 Magee, Taylor & Co.

**ine—**
any, 34 pkgs. A. & M. Zimmermann

**tchouc—**
rave, 490 c. L. & I. D. Jt. Co.
tates, 127 Williams, Torrey & Co., Ltd.
ce, 5 H. Johnson & Sons
any, 50 J. E. Wilson
dies, 23 Ross & Deering
bar, 78 Anderson, Weber, & Smith
ce, 15 Flageollet & Co.
bar, 28 Clarke & Smith
75 L. & I. D. Jt. Co.
any, 46 "
dasa, 20 Lewis & Peat
ios, 26 Gray, Dawes & Co.

**r Oil—**
ce, 6 cks. Beresford & Co.
35 pkgs. Lucas & Spencer's Wf., Ltd.
um, 57 brls. Fuerst Bros.
dies, 40 cs. Anderson, Weber, & Smith
15 Stebbing & Co.

**icals** (*otherwise undescribed*)
any, 19 cks. Phillipps & Graves
278 A. & M. Zimmermann
6 E. Austin & Co.
107 W. Burton & Sons
£57 A. & M. Zimmermann
nd, 200 Phillipps & Graves
any, 9 H. Lambert
10 cks. 162 pkgs. T. H. Lee

**e of Lime—**
38 pkgs. Thames S. T. & L. Co., Ltd.

**t Ore—**
y, 20 t. H. Johnson & Sons

**Cream of Tartar—**
Italy, 3 pkgs. Howards & Sons
" 21 Italo-Brit. S. N. Co.
Holland, 90 B. & F. Wf. Co., Ltd.
" 24 Middleton & Co.
France, 3 J. L. Lyon & Co.
" 6 Smith, Abbott & Co.
" 5 M. Ashby, Ltd.
" 5 G. Ward & Sons
" 42 Williams, Torrey & Co., Ltd.

**Dyestuffs—**
**Alizarine**
Holland, 2 pkgs. Elkan & Co.
**Aniline**
Holland, 11 pkgs. Elkan & Co.
**Argols**
Italy, 191 pkgs. Thames S. T. & L. Co., Ltd.
" 754 B. Jacob & Sons
France, 50 Ross & Deering
**Cochineal**
Canaries, 8 pkgs. Swanston & Co.
" 28 F. Huth & Co.
**Cutch**
Rangoon, 50 pkgs. A. Howden & Co.
**Divi Divi**
Savanilla, 1,492 pkgs. R. M. S. P. Co.
E. Indies, 46 Culverwell, Brooks & Co.
**Extracts**
France, 50 pkgs. Prop. Chmbln.'s Wf.
Denmark, 1 J. Sinclair & Son
France, 60 Carey & Sons
Denmark, 2 G. S. N. Co.
U. States, 80 E. H. Cousens & Co.
" 35 T. Palmer
Belgium, 100 L. J. Levinstein & Sons
" 25 Leach & Co
Canada, 160 A. J. Humphrey
U. States, 4 Beresford & Co.
**Gambier**
Singapore, 362 pkgs. Evans & Co.
" 270 L. & I. D. Jt. Co.
" 800 E. Boustead & Co.
" 218 Adamson, Gilfillan & Co.
" 379 R. J. Henderson
E. Indies, 421 Cox, Patterson & Co.
Singapore, 905 Brinkmann & Co.
**Indigo**
E. Indies, 40 chts. T. H. Allan & Co.
" 43 Arbuthnot, Latham & Co.
" 21 R. Von Glehn & Sons
" 10 F. Huth & Co.
" 236 L. & I. D. Jt. Co.
**Myrabolams**
Ceylon, 200 pkgs. A. & W. Nesbitt
E. Indies, 815 A. Hagan
" 762 C. E. Fosbrooke
" 508 Hoare, Wilson & Co.
" 557 L. & I. D. Jt. Co.
**Orchella**
Portugal, 242 pkgs. Prop. Bull Wf.
E. Indies, 2 Lewis & Peat
Zanzibar, 3 L. & I. D. Jt. Co.
**Safflower**
Spain, 1 pkg. Major & Field
**Sumac**
Italy, 125 pkgs. Italo-Brit. S. N. Co.
" 25 A. B. Curtis & Co.
**Tanners' Bark**
Durban, 17 t. A. & W. Nesbitt
Spain, 1¾ L. & I. D. Jt. Co.
Durban, 6 Bullard, King & Co.
Adelaide, 45 Beresford & Co.
Natal, 1 Bullard, King & Co.
Adelaide, 59 Baxter & Hoare
Auckland, 10 Beresford & Co.
**Valonia**
A. Turkey, 87 t. A. & W. Nesbitt

**Farina—**
U. States, 240 pkgs. J. Greig
Holland, 20 J. Barber & Co.

**French Chalk—**
Italy, £50 W. Harrison & Co.

**Glucose—**
U. States, 510pkgs. 512 c. L. & I. D. Jt. Co.
" 200 1,100 F. J. Warren
" 200 1,100 Prop. Chmbln.'s Wf.
" 105 105 L. Sutro & Co.
" 100 581 Prop. Scott's Wf.
" 50 280 Pillow, Jones & Co.
" 400 400 Fellows, Morton & Co.
" 200 1,200 Union L. Co., Ltd.
Holland, 10 77 F. H. & A. Collier
" 10 61 R. G. Hall & Co.
U. States, 690 690 Barrett, Tagant & Co.
" 1,130 1,280 R. G. Hall & Co.
" 500 500 Baxter & Hoare
" 1,250 1,250 J. Barber & Co
" 510 510 L. Norman & Co.

**Iron Oxide—**
Austria, 19 pkgs. Beck & Pollitzer

**Manure—**
France, 80 t. J. Burnett & Sons
Turkey, 3 F. Huth & Co
France, 272 H. Hagan
" 5 T. Trapp & Sons
Germany, 50 A. Hunter & Co

**Methyl Alcohol—**
Holland, 6 cks. Lister & Biggs
Belgium, 4 drs. "

**Mica—**
U. States, £30 Knight & Morris

**Ochre—**
France, 11 cks. W. Harrison & Co.
Germany, 7 cs. Phillipps & Graves
Holland, 5 cks. "

**Painters' Colours—**
Germany, 10 cs. W. Pattison & Co.
France, 18 pkgs. Flageollet & Co.
Belgium, 8 1 ck. T. Palmer
Germany, 8 T. H. Lee
" 5 L. & J. D. Jt. Co.
Holland, 1 ck. Herrmann, Keller & Co.
Germany, 5 cks. Craven & Co.
U. States, 109 pkgs. M. Ashby, Ld.

**Paraffin Wax—**
Germany, 64 cs. Grosscurth & Luboldt
U. States, 50 brls. G. Tweedy & Co.
" 21 Prod. Brokers' Co.
" 134 C. Ogleby & Co.

**Phosphate Rock—**
Brunswick, 850 t. C. Page & Co.
Belgium, 350 A. Hunter & Co.

**Pitch—**
N. Russia, 160 cks. Sieveking & Co.

**Plumbago—**
Ceylon, 17 cks. Hoare, Wilson & Co.
" 195 J. Thredder, Son & Co.
" 81 pkgs. Prop. Sun. Wf.
Germany, 22 cks. Le Seur & Co.

**Potash—**
Germany, 40 cks. Pillow, Jones & Co.

**Potassium Muriate—**
Germany, 1,084 pkgs. E. Packard & Co.

**Potassium Permanganate—**
Holland, 20 pkgs. F. Boehm

**Potassium Sulphate—**
France, 101 pkgs. Petri Bros.
" 18 Weatherley, Mead & Co.

**Pyrites—**
Spain, 750 t. Anderson, Anderson & Co.
" 630 T. S. Whitehead & Co.

**Rosin—**
U. States, 500 brls. Moore & Hole

**Saltpetre—**
Germany, 3 cks. Craven & Co.
" 115 102 bgs. P. Hecker & Co.

**Silica—**
Germany, £60 A. Haacke & Co.

**Sodium Hyposulphite—**
Holland, 100 pkgs. Beresford & Co.

**Stearine—**
U. States, 3 cs. Williams, Torrey & Co.
France, 134 bgs. J. Goddard & Co.
" 200 Beresford & Co.

**Sulphur—**
Italy, 10 t. C. J. Capes & Co.
" 21½ Italo-Brit. S. N. Co.
France, 20 brls. L. & J. D. Jt. Co.
Italy, 100 t. W. C. Bacon & Co.
" 100 J. Kitchin, Ld.
" 8 Burgoyne, Burbidge & Co.

**Talc—**
France, £40 G. G. Blackwe

**Tallow—**
France, 3 cks. Mory & Co.
Melbourne, 99 W. Pope & Co.
Sydney, 112 Horne & Co.
" 68 Coml. Bkg. Co. of Sydney
N. Zealand, 24 Goad, Rigg & Co.
" 76 Dalgety & Co.
" 3 R. Brookes & Co.
" 2 Flack, Chandler & Co.
" 169 N. Z. L. & M. A. Co.
Tasmania, 24 Hicks, Nash & Co.
Adelaide, 16 Flack, Chandler & Co.
Melbourne, 102 J. Owen
" 19 Baxter & Hoare
Sydney, 41 Hoare & Co.
France, 69 bgs. H. Hill & Sons

**Tar—**
Germany, 50 brls. Watson & Metcalf
N. Russia, 565 Linck, Moeller & Co.

**Tartaric Acid—**
France, 46 pkgs. B. & F. Wf. Co., Ld.
Holland, 38 "
" 8 W. C. Bacon & Co.

**Tin Oxide—**
Germany, 1 ck. H. Lambert

**Turpentine—**
N. Russia, 104 brls. C. B. Leighton
Savannah, 2,725 H. Frank & Co.
France, 15 cks. T. Trapp & Sons

**Ultramarine—**
Germany, 88 cs. Becker & Ulrich
Holland, 15 Hernu, Peron & Co.
**Varnish—**
France, 1 pkge. Flageollet & Co.
**White Lead—**
Germany, 12 cks. Spies Bros. & Co.
" 14 Blundell, Spence & Co.
" 16 Elkan & Co.
Holland, 19 A. Zumbeck & Co.
France, 11 Beresford & Co.
Germany, 36 H. Lambert
" 5 Bryce & Co.
" 17 S. H. Willoughby
" 40 Magee, Taylor & Co.
Holland, 27 Burrell & Co.
" 2 G. Rahn & Co.
**Zinc Oxide—**
U. States, 100 brls. M. Ashby, Ld.
Holland, 5 J. Owen & Co.
Germany, 35 cks. J. Matton
Holland, 201 brls. M. Ashby, Ld.
**Zinc White—**
France, 12 cks. Weatherley, Mead & Co.

## LIVERPOOL.

*Week ending August 25th.*

**Acetate of Lime—**
New York, 818 sks.
**Acid—**
Bordeaux, 1 cs.
**Antimony—**
Bordeaux, 1 bg.
**Barytes—**
Rotterdam, 12 cks.
**Benzine—**
Havre, 4 cs. Cunard S.S. Co., Ld.
**Castor Oil—**
Marseilles, 5 cks. Evans and Roberts
" 250 396 brls.
Calcutta, 1,492 cs. Ralli Bros.
" 200
**Chemical Pulp—**
Oporto, 600 bls. Cainea Wood Pulp Co.
**Chemicals** (*otherwise undescribed.*)
Rotterdam, 6 cks.
**Colours—**
Hamburg, 9 cs.
Ghent, 5 brls. J. T. Fletcher & Co.
Rotterdam, 13 51 cks.
**Cream of Tartar—**
Tarragona, 5 cks.
Barcelona, 2 pps.
**Dyestuffs—**
**Cochineal**
Gd. Canary, 10 bgs. Kolp & Co.
" 11 Duranty & Son
**Divi Divi**
Hamburg, 192 bgs. 1 cs.
Rio Hacha, 230 t. Widow, Duranty & Son
**Extracts**
New York, 10 bxs. 5 brls. F. Ree
" 10
Bordeaux, 100 cks.
Boston, 1
**Gambier**
Singapore, 2,800 brls. 705 bgs.
**Madder**
Rotterdam, 1 ck.
**Myrabolams**
Bombay, 667 bgs.
Calcutta, 312 Petrocochino Bros.
" 4,000 pkts.
**Farina—**
Marseilles, 12 cs.
Hamburg, 10 sks.
**Glucose—**
New York, 39 pkgs. Richardson, Spence & Co.
**Horn Piths—**
Rosario, 15 t.
B. Ayres, 54,478 t. Highland Scot. Cng. Co. Ld.
**Lead Acetate—**
Hamburg, 15 cks.
**Ochre—**
Marseilles, 9 brls.
Rouen, 22 cks. R. J. Francis & Co.
**Paint—**
Fredrikstad, 19 bxs. 1 cs.
Bremerhaven, 1 ck.
**Phosphate Rock—**
Fernandina, 2,401 t.
**Pitch—**
Bordeaux, 29 cks.
Amsterdam, 13
**Potash—**
Rouen, 65 cks. Co-op. W'sale Society, Ld.
Montreal, 15 brls.
**Pyrites—**
Huelva, 1,222 t. Matheson & Co.
**Rosin—**
New York, 2,123 brls.
Pensacola, 1,046
Ceara, 55 bgs.
**Salicylic Acid—**
Hamburg, 5 cs.
**Salt—**
River Plate, 10 t.
**Saltpetre—**
Hamburg, 75 brls.
Calcutta, 299 bgs.
Kurrachee, 409
**Salts of Tartar—**
Rotterdam, 6 cks.
**Soap—**
Marseilles, 10 cs.
New York, 220 brls. Simonds, Hunt & Co.
Cabenda, 1 kg. Hatton & Cookson
**Soapstone—**
Bordeaux, 100 bgs. G. G. Blackwell
" 50 sks.
**Soda—**
Rotterdam, 50 brls.
**Sodium Acetate—**
Rouen, 8 cks. Co-op. W'sale Society, Ld.
**Sodium Nitrate—**
Iquique, 1,348 t.
**Stearine—**
New York, 8 hds.
Rotterdam, 1 bx.
**Sulphate—**
Havre, 8 pkgs. Cunard S. S. Co., Ld.
**Sulphur Wicks—**
Tarragona, 1 cs. J. Baillargean
" 1 D. Massoon & Co.
**Tallow—**
Philadelphia, 26 tcs.
In transit, 6 brls.
San Nicolas, 150½ pps. J. Gordon & Co.
Rouen, 34 cks. R. J. Francis & Co.
New York, 30 hds.
B. Ayres, 274
Boston, 12
**Tar—**
Archangel, 1,945 brls. J. A. Bencke & Co.
**Tartar—**
Bordeaux, 10 cs.
**Tartaric Acid—**
Rotterdam, 9 cks.
**Ultramarine—**
Hamburg, 5 cs.
Rotterdam, 4
**White Lead—**
Rotterdam, 23 cks.

## HULL.

*Week ending August 27th.*

**Acetic Acid—**
Rotterdam, 10 cbys. 17 btls. Hutchinson & Son
**Alkali—**
Flushing, 5 cks. Zeeland S. S. Co.
**Barytes—**
Bremen, 20 cks. G. Holmes & Co.
Antwerp, 44
**Caoutchouc—**
Hamburg, 8 cs. 4 bls. C. M. Lofthouse & Co.
**Chemicals** (*otherwise undescribed*)
Stettin, 31 cks. Wilson, Sons & Co., Ltd.
Bremen, 1 cs. Veltmann & Co.
" 1 J. Pyefinch & Co.
Antwerp, 7 112 pks. Wilson, Sons & Co., Ltd.
Dunkirk, 98 pks. "
**Colours—**
Rotterdam, 1 ck.
Antwerp, 25 brls. 100 bgs. Bailey & Leetham
Bremen, 4 cks. Hanger, Watson & Harris
Rotterdam, 4 cs. Hutchinson & Son
" 1 ck. 2 G. Lawson & Sons
" 17 2 37 pks. W. & C. L. Ringrose
Flushing, 18 150 25 cks. Zeeland S. S. Co.
Antwerp, 15 cks. Wilson, Sons & Co., Ltd.
" 6 cs.
Ghent, 12
**Dextrine—**
Stettin, 100 bgs. Wilson, Sons & Co., Ltd.
**Dyestuffs—**
**Alizarine**
Rotterdam, 64 cks. W. & C. L. Ringrose
" 19 brls. G. Lawson & Sons
**Madder**
Rotterdam, 3 cks. Hutchinson & Son
**Farina—**
Stettin, 100 bgs. Wilson, Sons & Co., Ltd.
Ghent, 146 cs. "
Hamburg, 100 "
Dunkirk, 4 cks. "
**Glucose—**
New York, 200 brls.
**Kali—**
Rotterdam, 1 ck. W. & C. L. Ringrose
**Manure—**
Ghent 500 bgs. Wilson, Sons & Co., Ltd.
**Naphtha—**
Rotterdam, 2 drms. W. & C. L. Ringrose
**Ochre—**
Rouen, 10 cks. Rawson & Robinson
**Painters' Colours—**
New York, 37 brls. Zeeland S. S. Co.
**Potash—**
Rotterdam, 7 cks. G. Holmes & Co.
**Pyrites—**
Drontheim, 98 t.
**Saltpetre—**
Rotterdam, 170 bgs. Wilson, Sons & Co., Ltd.
**Soap—**
New York, 10 brls. Wilson, Sons & Co., Ltd.
**Turpentine—**
Libau, 52 cks.
**Ultramarine—**
Rotterdam, 6 cks. Hanger, Watson & Harris
" 1 Todd & Son
**White Lead—**
Rotterdam, 15 cks. Sissons, Bros. & Co.
" 13 Johnson Bros.
Antwerp, 44 Bailey & Leetham
Rotterdam, 26 Sissons, Bros & Co.

## GLASGOW.

*Week ending September 1st.*

**Alum—**
Rotterdam, 40 cks. G. & J. Boyd
**Asbestos—**
Montreal, 224 bgs.
**Barytes—**
Rotterdam, 138 cks.
**Barytes Sulphate—**
Antwerp, 105 bgs.
**Bleaching Powder—**
New York, 200 bxs.
**Castor Oil—**
Genoa, 25 css.
Marseilles, 31 brls.
**Colours—**
Rotterdam, 3 cks. 2 css. J. Rankine & Son
" 20 G. & J. Boyd
Hamburg, 2
**Cream of Tartar—**
Marseilles, 10 brls.
**Dyestuffs—**
**Alizarine**
Rotterdam, 120 cks.
**Extracts**
Baltimore, 50 brls. M'Arthur, Scott & Co.
" 6 J. Strang & Sons
" 20
Antwerp, 5 cks.
**Gambier**
Singapore, 870 brls.
**Sumac**
Palermo, 500 bgs.
**French Chalk—**
Leghorn, 3 cs.
**Glucose—**
New York, 310 brls.
**Lime—**
New York, 6 css.
**Mineral White—**
Genoa, 80 bgs.
**Phosphate of Lime and Phosphate Rock—**
Ghent, a quantity
**Potash—**
Montreal, 4 brls. Rowley &
**Pyrites—**
Genoa, 85 bgs.
**Rosin—**
New York, 1,982 brls.
**Soap—**
Marseilles, 120 css.
**Stearine—**
Antwerp, 13 bgs.
**Sulphur—**
Messina, 200 bgs. Poynt & Mac
" 76 brls. 310 b 1,000
Licata, 12,000 c.
**Tallow—**
Baltimore, 210 trcs. J. Ode
" 200 brls. Hutch Mais
" 752 pkgs. B. B
New York, 100 trcs. 100 b
**Tar—**
Archangel, 1,705 brls. G Ropew
**Tartar—**
Bordeaux, 16 cks.
**Tartaric Acid—**
Marseilles, 8 brls.
**Varnish—**
New York, 242 brls.
**White Lead—**
Rotterdam, 23 cks.
**Zinc Oxide—**
New York, 50 brls.
Rotterdam, 10 cks. J. Ra
Antwerp, 35

## TYNE.

*Week ending August 27*

**Alum Earth—**
Hamburg, 18 cks. Tyne S
**Barytes—**
Antwerp, 43 cks. Tyne S
**Colours—**
Hamburg, 3 cks. 2 cs. Tyne S
**Glucose—**
New York, 100 brls. Furnes
**Glycerine—**
Rotterdam, 5 cs. Tyne S
**Paint—**
Antwerp, 15 dms. Tyne S
**Phosphate—**
Antwerp, 220 t. Langdale Ma
**Phosphate Rock—**
Port Royal, 1,000 t. Blaydon M A
**Potash—**
Hamburg, 3 cks. Tyne
**Pyrites—**
Huelva, 1,928 t. So
**Rosin—**
Wilmington, 3,500 brls. Ri
**Saltpetre—**
Hamburg, 250 t. Cl
**Soap—**
New York, 10 bxs. Furne
**Sulphur Ore—**
Memel, 303 t.
**Tallow—**
New York, 76 hhds. Furnes
**Ultramarine—**
Rotterdam, 4 cks. Tyne
Hamburg, 6

## GOOLE.

*ending August 17th.*

**e—**
m, 145 pkgs.
m, 14 cks.
**ouc—**
e, 2 cks. 2 cs.

**Caustic Potash—**
Dunkirk, 63 dms. 10 cks.
**Dyestuffs** (*otherwise undescribed*)
Boulogne, 6 cs. 10 pkgs. 27 cks.
**Extracts—**
Hamburg, 13 cks.
**Farina—**
Hamburg, 930 bgs.

**Potash—**
Rotterdam, 39 cks.
**Saltpetre—**
Rotterdam, 200 bgs.
**Tartaric Acid—**
Rotterdam, 9 cks.
**Waste Salt—**
Hamburg, 271 t. 163 cks.

## GRIMSBY.

*Week ending August 20th.*

**Chemicals** (*otherwise undescribed*)
Hamburg, 38 pkgs.
Antwerp, 3 cks.
**Farina—**
Hamburg, 15 pkgs.
**Size—**
Antwerp, 6 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*ending August 31st.*

**Acid—**
me, 1 t. 8 c. £39
2 t. £12
**la—**
10 cs. £23
**ium Carbonate—**
1 c. £10
10 cs. 16
**ium Chloride—**
n, 1 t. £32
g, 3 12 c. 82
1 16 57
3 18 115
**ium Sulphate—**
am, 3 t. £34
g, 100 16 c. 1,000
10 12 100
34 342
**ous Ammonia—**
own, 5 clydrs. £83
—
Bay, 1 t. £15
m, 10 c. £7
**ide of Carbon—**
am, 13 drs. £55
al, 11 c. £13
**ite of Lime—**
a, 1 t. 11 c. £24
—
10 c. £15
g, 8 cks. 60
ury, 5 8
on, 10 17
agen, 16 42
**c Acid—**
lphia, 7 c. £75
1 t. 8 50
us, 3 7 106
am, 3 8
ersburg, 75 cks. 160
nd, 20 drs. 18
4 8 38
n, 8 12
5 10
2 4 16
g, 10 17 107
**Potash—**
Kong, 5 c. £12
**Soda—**
Bay, 6 c. £10
a, 10 t. 13 110
s, 6 4
nd, 4 7 33
don, 3 120
own, 5 8
**als** (*otherwise undescribed*)
, 21 kgs. £11
Bay, 34 pkgs. 61
nca, 7 t. 10 c. 20
a, 1 6 86
ersburg, 1 cs. 12
, 3 kgs. 22
al, 3 18
hee, 2 20
le, 29 59
ne, 2 19
**al Salts—**
12 cs. £140
**Acid—**
on, Jam., 1 c. £8
rg, 2 t. 10 390
own, 1 9
don, 1 8
gton, 1 8
, 15 115
, 3 24

Amsterdam, 6 47
Rotterdam, 5 39
Adelaide, 1 8
St. Petersburg, 20 cks. 2 3 kgs. 196
Barcelona, 8 304
Algoa Bay, 6 46
Canterbury, 1 8
Santos, 4 35
Moscow, 1 t. 10 230
Calcutta, 3 25
Brussels, 5 38
**Coal Products—**
**Aniline**
St. Petersburg, 1 ck. £32
Brisbane, 2 cs. 20
Boulogne, 1 34
Sydney, 1 17
**Alizarine**
Boston, 50 cks. £817
**Aniline Salts**
Naples, 2 cks. £15
**Benzol**
Calais, 20 cks. £174
Hamburg, 30 dms. 381
**Creosote**
Calais, 26 cks. £70
**Coal Tar Dyes**
Boston, 5 pkgs. £104
**Naphtha**
Calais, 3 rnlts. £18
**Naphthalene**
Marseilles, 48 cks. £48
**Paraffin Wax**
E. London, 33 cs. £225
Hobart, 42 160
**Pitch**
Antwerp, 311 t. £405
St. John's, N. Fld., 150 brls. 52
New York, 2,000 cks. 511 bgs. 1,059
Boston, 500 250 377
Sydney, 30 25
Bombay, 10 13
**Tar**
New York, 999 cks. £512
Boston, 263 145
Calcutta, 15 rnlts. 15
Berbice, 10 brls. 10
Melbourne, 10 rnlts. 18
Galatz, 125 75
Ibrail, 50 30
St. Petersburg, 1,100 brls. 550
**Tar Oil**
Gothenburg, 511 bgs. £363
Paris, 20 cks. 90
**Tar Salts**
Hamburg, 20 cks. £45
**Coal Products** (*otherwise undesc'd.*)
Auckland, 10 brls. £10
**Copperas—**
Varna, 9 t. 11 c. £19
**Copper Sulphate—**
Odessa, 5 t. £80
**Corrosive Sublimate—**
Barcelona, 4 c. £47
**Cream of Tartar—**
Sydney, 3 t. 15 c. £321
Auckland, 5 24
New Plymouth, 5 25
Lyttleton, 1 10 143
Hobart, 4 20
**Cream of Tartar & Tartaric Acid**
Invercargill, 1 tk. £62
**Disinfectants—**
New York, 1 t. 2 c. £25
Kingston, 80 drs. 28
Hamburg, 13 cks. 65
Penang, 100 35
Victoria, 5 cs. 21
Montreal, 9 pkgs. 15
Amsterdam 15 65
Sydney, 5 21
**Flowers of Sulphur—**
Lisbon, 12 brls. £10

**Glycerine—**
Hong Kong, 4 c. £10
Cologne, 16 t. 6 205
**Hypophosphite of Lime—**
Rotterdam, 7 cs. £82
**Manure—**
Ghent, 50 t. £525
Alicante, 37 1 c. 370
Denia, 296 9 2,960
Auckland, 30 200
Lyttelton, 15 100
New Plymouth, 4 30
Riga, 142 13 357
Limon, 10 87
Genoa, 36 9 180
Stettin, 69 12 260
**Nitric Acid—**
Jersey, 24 cbys. £44
**Oxalic Acid—**
Sydney, 10 c. £15
**Phosphoric Acid—**
Philadelphia, 1 cs. £11
**Phosphorus—**
Lisbon, 2 cs. £22
Barbadoes, 1 10
**Potash—**
Suez, 6 c. £11
**Potash Crystals—**
Toronto, 6 c. £15
New York, 6 20
**Potassium Bicarbonate—**
Philadelphia, 2 t. 5 c. £64
**Potassium Cyanide—**
Singapore, 4 cs. £21
**Potassium Nitrate—**
New York, 5 t. 13 c. £152
**Pyrogallic Acid—**
Montreal, 3 c. £14
**Saltpetre—**
Adelaide, 1 t. £22
Melbourne, 1 22
Auckland, 1 22
Brisbane, 10 c. 11
Cape Town, 6 6
Dunedin, 1 22
Syra, 8 5 169
Lisbon, 10 10
New York, 3 8 72
Sydney, 1 22
**Salts of Lime—**
New York, 10 cks. £105
**Sheep Dip—**
Natal, 300 drs. £65
Cape Town, 20 cs. 60
Algoa Bay, 50 525 pkgs. 270
E. London, 450 100
Sydney, 2 t. 2 c. 90
Auckland, 205 142
Gisborne, 300 178
Invercargill, 380 350
Timaru, 50 60
Bluff, 160 307
Dunedin, 670 1,115
Calcutta, 130 65
**Soda—**
Cape Town, 8 t. 2 c. £29
**Soda Crystals—**
Alexandria, 1 t. £4
Cleveland, B., 1 4
Hobart, 1 13 c. 6
Newcastle, 20 3 70
Cape Town, 1 3 4
**Sodium Bicarbonate—**
Balea, 2 t. 5 c. £11
Brisbane, 1 10 11
Calcutta, 14 6
Santos, 10 5
**Sodium Carbonate—**
Hobart, 1 t. £8
**Sodium Hyposulphite—**
Shanghai, 1 t. £10

**Sodium Tartrate—**
Lisbon, 5 c. £25
**Strontium Nitrate—**
New York, 5 t. 4 c. £147
**Sulphur—**
Philadelphia, 1 t. 11 c. £58
**Sulphuric Acid—**
E. London, 10 drs. £13
Singapore, 1 t. 18 c. 19
**Superphosphate—**
Libau, 400 t. £1,200
Riga, 356 4 c. 1,068
**Tartaric Acid—**
Oporto, 1 ck. £7
B. Ayres, 5 55
St. Petersburg, 2 15
Melbourne, 1 t. 10 c. 181
Sydney, 2 10 283
Auckland, 10 56
Wellington, 5 30
New Plymouth, 2 12
Lyttelton, 5 30
Canterbury, 2 17
Santos, 2 12

## LIVERPOOL.

*Week ending August 31st.*

**Alum—**
Capetown, 2 t. 3 c. £12
Piræus, 1 18 10
Malta, 3 2 15
Constantinople, 3 2 16
Montreal, 13 11 78
Alexandria, 4 24
Beyrout, 8 7 49
Lisbon, 4 24
B. Ayres, 14 10 87
Pernambuco, 1 6
**Aluminous Cake—**
Cochin, 4 t. 6 c. £14
**Ammonium Carbonate—**
Lisbon, 1 t. 1 c. 1 q. £30
Leghorn, 10 14
Philadelphia, 1 32
**Ammonium Chloride—**
Lisbon, 11 c. £15
Malta, 2 4
Smyrna, 1 t. 34
Genoa, 1 12 2 q. 28
Barcelona, 1 1 1 34
Philadelphia, 25 1 563
**Ammonium Sulphate—**
Nantes, 35 t. 4 c. £387
Barcelona, 77 2 799
Gr. Canary, 20 105
Rouen, 20 200
Teneriffe, 2 9 3 c. 25
Genoa, 20 201
Leghorn, 56 19 3 551
**Antimony—**
Bombay, 8 cs.
Rio de Janeiro, 1 ck.
**Arsenic—**
Mexico City, 7 c. £5
**Asbestos—**
Bombay, 3 bgs.
**Barytes Chlorate—**
Antwerp, 5 c. £19
**Bleaching Powder—**
Baltimore, 251 cks.
Boston, 842
Rio de Janeiro, 14
Rouen, 71
Philadelphia, 43
Smyrna, 10 brls.
**Borax—**
Antwerp, 18 t. 3 c. £546
Stettin, 1 5 38
Bordeaux, 1 2 30

Piræus, 10 16
Rotterdam, 14 5 1 q. 430
Valparaiso, 100 cs. 67
New York, 10 cks. 84
Hamburg, 7 33

**Calcium Chloride—**
Genoa, 3 t. 2 c. £7
New York, 10 2 22
B. Ayres, 28 19 66

**Carbolic Acid—**
New York, 4 t. 5 c. £81
Odessa, 1 12 2 q. 91
Hamburg, 5 16 3 141

**Castor Oil—**
Rio de Janeiro, 3 cs.

**Caustic Potash—**
Boston, 3 t. 13 c. £105
Algoa Bay, 1 14 18

**Caustic Soda—**
Baltimore, 135 brls.
Barcelona, 100 dms. 55
Beyrout, 180
Cadiz, 6 10
Calcutta, 56
Galatz, 5 kgs.
Havana, 114
Lisbon, 50
Malaga, 20 cks.
Naples, 191
New York, 788 45 bxs.
Odessa, 81
Para, 56
Rio de Janeiro, 3
San Sebastian, 80
Singapore, 40 kgs.
Sydney, 117
Trieste, 106
Almeria, 5
Antwerp, 50 cks.
Bombay, 1
Bordeaux, 17
Boston, 150
Carthagena, 20 20
Ceara, 55
Dunedin, 18
Fiume, 45
Genoa, 206
Hamburg, 22 5 bxs.
Malta, 100
Manilla, 418
Maracaibo, 10
M. Video, 111
Montreal, 85
Penang, 50 kgs.
Pernambuco, 15
Salonica, 14
Sofia, 36
Tarragona, 54 10
Valencia, 30
Valparaiso, 102
Vigo, 6 12
Wellington, 18
Yokohama, 50

**Chemicals** (*otherwise undescribed*)
Genoa, 2 t. 10 c. £82
Samsoun, 1 brl. 6
Beyrout, 6 2 q. 9
Havana, 9 £18
Antwerp, 5 14
Hamburg, 1 2 33
New York, 10 15
Rotterdam, 5 8
Bombay, 10 16

**China Clay—**
Bombay, 35 t. 200 cks.
Boston, 60
Cornwall, Ont., 240
Georgetown, 80
Windsor, 160 t.
New York, 140 bgs.
Rio de Janeiro, 6

**Chloride of Lime—**
Porto Alegre, 2 t. 11 c. £20

**Chloroform—**
Montreal, 1 cs.

**Coal Products—**
**Aniline Colour**
Rio de Janeiro, 1 cs.
**Aniline Oil**
Rio de Janeiro, 1 tin.
**Aniline Salt**
Rio de Janeiro, 1 cs.
Bombay, 5 cks.

**Copperas—**
Beyrout, 11 t. 3 q. £22
Rio de Janeiro, 2 18 c. 6

**Copper Sulphate—**
Naples, 4 t. 19 c. £67
Trieste, 35 4 479
Rio de Janeiro, 6 4 1 q. 86
Leghorn, 6 1 1 85
Palermo, 4 14 2 67
Vera Cruz, 10 143
Wellington, N.Z., 1 5 17

Bombay 5 71
Antwerp, 2 2 43
M. Video, 2 10 37
New York, 10 150
Genoa, 5 11 81
Naples, 10 1 2 143
Calcutta, 5 76

**Disinfectants—**
Bombay, 2 t. 15 c. £15
Genoa, 10 cks. 80

**Glycerine—**
Rotterdam, 8 t. 15 c. £228

**Guano—**
Tarragona, 50 t. £482

**Gypsum—**
New York, 72 t. 12 c. £268

**Lime—**
Port Natal, 15 t. £14

**Manganese—**
Antwerp, 2 cks.

**Magnesia—**
Antwerp, 6 cs. 12 bxs.
Colon, 3

**Magnesium Chloride—**
Boston, 6 t. 4 c. £20

**Magnesium Citrate—**
Gijon, 3 cs.

**Magnesium Sulphate—**
Valencia, 2 t. 10 c. £12
Genoa, 6 cks.

**Manure—**
Genoa, 100 t. 1 c. £738
Marseilles, 101 8 3 q. £551
Rotterdam, 40 125

**Metallic Sodium—**
Rotterdam, 2 t. 1 q. £439

**Mineral White—**
Montreal, 57 cks.
New York, 90

**Nitrate of Lead—**
Genoa, 10 c. £10

**Paint—**
Abouncina, 14 kgs.
Amapasa, 10 cs.
Calcutta, 21 254 2 brls. 3 cks.
Candia, 68 2
Cephalonia, 24
Colon, 4
Corfu, 18
Guantanamo, 2
Hamburg, 13 1
Hong Kong, 8 tcs.
Humacao, 1 1
Lisbon, 1 cs.
Loango, 16
M. Video, 4
Montreal, 1 cs. 69
New York, 1 bx. 80 150 50
Rio Grande, 3 cs.
Volo, 3
Adelaide, 8
Barcelona, 1
Bremerhaven, 50 dms.
B. Ayres, 2 cks.
Callao, 146 1
La Libertad, 6
Limon, 101
Mayaquez, 4 tcs. 1 5 2
Palermo, 1 cs.
Pernambuco, 1
Rio de Janeiro, 30 10 cs. 24
Rotterdam, 3
Sulina, 6
Sydney, 12 dms. 3 bxs.
Trieste, 60 50
Valparaiso, 7 30 21
Vigo, 3 brls.

**Painters' Colours—**
Bahia, 6 hds. 1 brl.
Bombay, 6 brls. 10 kgs. 11 cs.
B. Ayres, 32
Constantinople, 300
Galatz, 70 dms.
Genoa, 1
London, Ont., 18
Para, 1 cs. 14 tcs. 12 20 70 dms. 2 cks.
Petit Goave, 2 cks.
Philadelphia, 10
Ponce, 2 tcs. 4 1 brl.
Rio de Janeiro, 3 7 1 cs. 5 brls.
Santiago, 10 30
Savanilla, 100
Shanghai, 25 cs.
Valparaiso, 33
Yokohama, 20
Antwerp, 16
Arroyo, 3
Bakana, 4 dms. 6
Bilbao, 4
Bordeaux, 31

Lisbon, 2
Oporto, 8
Parnahiba, 1 brl.
St. John's, Nfld, 40 38 pkgs.
Salonica, 3
Santander, 10 brls.
Syra, 15

**Paraffin Wax—**
Patras, 7 cs.

**Phosphorus—**
Santiago de Cuba, 2 cs. £28
Vera Cruz, 7 77

**Potash—**
M. Video, 1 t. 3 c. £27

**Potassium Chlorate—**
Valparaiso, 1 t. £48
Hiogo, 7 10 c. 366
Antwerp, 1 56
Leghorn, 1 50
Gothenburg, 3 5 159
San Francisco, 1 15 84
Melbourne, 1 2 1 q. 57
Danzig, 10 30
Boston, 3 15 210
Genoa, 5 14
Naples, 4 5 2 220
Yokohama, 5 260
Manaos. 4 10
New Orleans, 1 50
Venice, 10 25
Hamburg, 4 18 263
New York, 8 15 472
St. Petersburg, 7 10 380
Sydney, 10 480

**Rosin Oil—**
Alexandria, 6 brls.

**Rosolic Acid—**
New York, 15 c. £126

**Salt—**
Accra, 15 t.
Appam, 5
Brisbane, 90
B. Ayres, 46
Calcutta, 7,493
Charlottetown, 362
Melbourne, 42 4 c.
Montreal, 449
New Orleans, 500
Newport News, 940
Rio de Janeiro, 2 4
Santos, 1 2
Seydisfjord, 120
Sydney, 201 1
Wilmington, 313
Abonnema, 250 bgs.
Boston, 100
Montreal, 200
Rangoon, 1,000
Rio de Janeiro, 1 9

**Salt Cake—**
Philadelphia, 100 t. 2 c. £261
Antwerp, 73 13 3 q. 216
Baltimore, 697 18 1,728

**Saltpetre—**
Manaos, 7 c. £8
B. Ayres, 4 5
Halifax, 15 2 q. 19

**Sheep Dip—**
Wellington, N.Z., 350 galns. £85
B. Ayres, 110 t. 5 c. 3,295

**Size—**
Ghent, 4 cks.
Magog, 7

**Soap—**
Abonnema, 200 bxs.
Antwerp, 200 400 cs.
Barbadoes, 250
E. London, 1,081 2
Gibraltar, 470 10
Harbourgrace, 50
Havre, 240
Hong Kong, 200 200 dms.
Kingston, 675
New York, 200 2 3 cks.
Rio de Janeiro, 24
Salaverry, 3
Singapore, 40 kgs.
Talcahuano, 1
Toronto, 14
Algoa Bay, 1,250
Antofagasta, 100
Batavia, 2,500
Bombay, 92
Boston, 10 fkns.
B. Ayres, 1
Calcutta, 5 500 brls.
Callao, 100 1
Cameroons, 20
Capetown, 2,705 15
Colon, 500
Constantinople, 300
Corfu, 6
Drewin, 109

Elmina, 50
Gr. Canary, 650
Iquitos, 200
Jersey. 63
Kurrachee, 750 5
Lagos, 106 1
Malta, 32
Maranham, 2
Mayumba, 255
Montreal, 3
Old Calabar,
Opobo, 2
Oran, 50
Port Natal, 190
,, Said, 40
Rangoon, 500 6
St. John's, Nfld., 889 34
Savanilla, 15
Shanghai, 2,909
Sourabaya, 1,500
Tangiers, 25
Valparaiso, 250

**Soda—**
Buffalo, 60 brls.

**Soda Alkali—**
Catania, 15 bls.
Genoa, 52 brls.
Leghorn, 40
Lisbon, 40
Malta, 37
Marseilles, 37
Mauritius, 17
Montreal, 50
Odessa. 100
Panama, 5
Para, 23
Zante, 20

**Soda Ash—**
Baltimore, 426 cks.
Barcelona, 12
Bombay, 8
Boston, 226 1
Corfu, 50 200 brls.
Ghent, 8
Smyrna, 75
Varna, 120
B. Ayres, 300
Fenelon Falls. 25
Genoa, 22
London, Ont., 50
Madeira, 6
Melbourne, 170
Montreal, 13 56
New York, 1,025 204 tcs. 5
Para, 6 brls.
Philadelphia, 528
Piræus, 10
Port Colborne, 27
Rio Grande, 50
,, de Janeiro, 200
San Francisco, 96
Vera Cruz, 50
Vigo, 4

**Soda Crystals—**
Bombay, 34 kgs.
Calcutta, 66 brls.
E. London, 20
Montreal, 30 50
New York, 199
Singapore, 6
Sourabaya, 150
Sydney, 168
Thorshaven, 2
Algoa Bay, 100
Arica, 10
Corfu,
London, Ont., 50 50
New Orleans, 11
Port Said, 20
Valparaiso, 100

**Sodium Acetate—**
Sydney, 7 cks.

**Sodium Arseniate—**
Rio de Janeiro, ck.
Magog, cks.

**Sodium Biborate—**
B. Ayres, 7 t. 9 c.

**Sodium Bicarbonate—**
Bilbao, 1 kg.
Bombay, 112 kgs. 2 cks.
Bordeaux, 25
Genoa, 70
Kurrachee, 30 2
Leghorn, 50
Lisbon, 100
Malaga, 100
Marseilles, 75
Naples, 140 12
Rouen,
St. John's, Nfld., 20
Sourabaya, 3
Sydney, 444
Volo, 85

d, 20
lay, 20
na, S, 20
stown, 100 20
, 60
n, 50
Ont., 50
l, 200 30 bgs.
mouth, 20
um, 45
10
so, 10 7
on, 140
**Carbonate—**
rk, 112 brls.
84
um, 50
**Chlorate—**
rk, 100 kgs. 100 brls.
**Hyposulphite—**
20 kgs.
**Silicate—**
a, 50 brls.
6 cks.
36
**Stannate—**
aneiro, 1 ck.
**Sulphate—**
, 18 t. 5 c. 3 q. £60
—
, 14 t. 15 c. 3 q. £100
5 24
6 5
al, 11 2 64
**osphate—**
ary, 3 t. £7
, 32 3 c. 3 q. 96
48 15 1 146
, 19 10 58
160 3 379
, 3 11
—
ria, 62 brls. 27 bxs.
64 1 ck.
, 1
na, S., 19 cks.
, 60
, Nfld., 185½ brls. 25 cks.
, 4 t. 17 c.
—
ano, 2 cs.
ia, 2
4 cks.
**oride—**
10 t. 9 c. 2 q. £165
1 4 24

## LASGOW.

*ending September 1st.*

10 cbys. £6
—
10 t. 3 c. £110
**m Sulphate—**
62 t. 8½ c. £624
n, 5 dms. £50
—
11 t. 18¾ c. £418
5 7 140
2 t. 4¾ c. £67
—
5 t. 3¾ c. £170
—
550 brls. £850
5 t. £120
10 t. 1 c. £70
£35
, 118
2 t. 7 c. 40
8 7 105
£46 16s.
7½ £5 11s.
**Colours—**
4 t. 4¾ c. £67
g, 12 12 238
**Tax—**
2 t. 9 c. £96
, 17½ 28
14 14 361
1 14½ 75

**Pitch—**
Amsterdam, 100 t. £140
Bombay, 100 bls. 31
**Potassium Bichromate—**
Rotterdam, 2 cks. £32
Japan, 5 t. 200
**Potassium Prussiate—**
Rouen £29 15s.
**Salt Cake—**
Antwerp, 258 t. 2 c. £520
**Sheep Dip—**
B. Ayres, 6,732 lbs. £250
**Silica—**
Shanghai, 6 t. 3 c. £25
**Sodium Bichromate—**
Rouen, 22 t. 18¾ c. £500
**Tallow—**
Rotterdam, 112 c. £200
Nickerie, 5½ 8
**Tar—**
Alexandria, 4 t. 12 c. £34 10s.
Singapore, 21 17½ £47 10s.
Bombay, 100 brls. £40 10s.
**Varnish—**
Shanghai, 18 c. £49 13s.
Japan, 12¾ £24 11s.
**Zinc White—**
Hong Kong, 1 t. 5 c. £20

## HULL.

*Week ending August 27th.*

**Ammonia—**
Rotterdam, 20 kgs.
**Bleaching Powder—**
Boston, 75 cks.
Stettin, 67
**Carbolic Acid—**
Hamburg, 59 cks.
**Caustic Soda—**
Antwerp, 37 dms
Danzig, 200
Helsingfors, 2 cks.
Libau, 35
Riga, 292
Stettin, 17
Wyburg, 4
**Chemicals** *(otherwise undescribed)*
Amsterdam, 40 pkgs.
Copenhagen, 85 14 cs. 5 cks.
Christiania, 24 6
Danzig, 25 kgs. 50
Drontheim, 10
Genoa, 21 30
Hamburg, 15 pks. 37 68
Harlingen, 25
Leghorn, 2
Libau, 50
Naples, 5
Rouen, 10 15
Rotterdam, 6 100
Riga, 25 55 kgs. 414
Stockholm, 2
St. Petersburg, 100 15 55
Stettin, 18 5
**Cottonseed Oil—**
Antwerp, 370 c.
Amsterdam, 235
Bremen, 100
Bergen, 16
Danzig, 34
Gothenburg, 120
Hamburg, 702
Konigsberg, 52
Rotterdam, 1,568
Stettin, 500
**Creosote—**
Copenhagen, 20 cks.
Danzig, 100
Libau, 50
St. Petersburg, 300
**Dried Blood—**
Leghorn, 480 bgs.
**Dyestuffs** *(otherwise undescribed)*
Christiania, 41 bgs. 4 cks.
Hamburg, 2
Rotterdam, 1
Riga, 1
St. Petersburg, 5 cs. 3 bls.
Stettin, 18
**Guano—**
Dunkirk, 534 bales.
**Gypsum—**
New York, 120 cks.
**Linseed Oil—**
Antwerp, 202 c.
Bremen, 174
Bergen, 62
Copenhagen, 20
Christiania, 683
Flushing, 335
Hamburg, 73
Rotterdam, 51
Stavanger, 79
**Manure—**
Copenhagen, 93 t.
Danzig, 1,100 bgs.
Genoa, 10
Hamburg, 183 bls.
Marseilles, 50
Stettin, 10
**Mineral White—**
Amsterdam, 100 bls.
Hamburg, 1 ck. 500
**Ochre—**
Copenhagen, 15 cks.
Rotterdam, 4
**Painters' Colours—**
Antwerp, 31 cks. 73 dms.
Boston, 40 25 pks.
Bergen, 2 64
Copenhagen, 5 7
Christiania, 15 2 74
Christiansund, 1 139
Dunkirk, 2
Drontheim, 10 5 cs.
Flushing, 1
Ghent, 12
Genoa, 50
Gothenburg, 1
Hamburg, 42 68 pks.
Helsingfors, 2 50
Marseilles, 8
Naples, 8 84
New York, 200
Rouen, 3
Rotterdam, 6
Riga, 50
Stockholm, 4 cs.
St. Petersburg, 50
Stettin, 49 10
Stavanger, 1 36
**Pitch—**
Antwerp, 60 t.
**Size—**
Flushing, 20 cks.
**Soap—**
Christiania, 90 cs.
Dunkirk, 6
Stockholm, 1
**Superphosphate—**
Helsingfors, 480 t.
**Tallow—**
Gothenburg, 2 cks.
**Tar—**
Antwerp, 1 ck.
Genoa, 100
Hamburg, 9
Helsingfors, 50
Rouen, 1 cs.
Stockholm, 10
**Varnish—**
Antwerp, 5 cs. 1 ck.
Bergen, 2 2 dms.
Copenhagen, 2
Christiania, 2
Hamburg, 1
Naples, 1

## TYNE.

*Week ending August 27th.*

**Alkali—**
Amsterdam, 41 t. 18 c.
St. Petersburg, 15 1
Antwerp, 5 7
Copenhagen, 6 4
Rotterdam, 3 6
Riga, 24 19
Bergen, 2 19
Genoa, 9 2
**Alum—**
Rotterdam, 10 t.
**Alum Cake—**
Copenhagen, 20 t.
**Ammonium Carbonate—**
Genoa, 11 c.
**Ammonium Sulphate—**
Genoa, 35 t.
**Antimony—**
Rotterdam, 5 t.
**Barytes—**
Rotterdam, 50 t.
**Bleaching Powder—**
Amsterdam, 10 t. 16 c.
St. Petersburg, 365 7
Antwerp, 10 3
Hamburg, 12 12
Rotterdam, 24 3
Riga, 144 8
Lisbon, 10 11
Trondhjeim, 15 6
Copenhagen, 22 5
Genoa, 7 15
**Caustic Soda—**
Amsterdam, 9 t. 5 c.
Antwerp, 5 16
Hamburg, 15 19
Riga, 6 4
Genoa, 39 10
Gothenburg, 4 18
**Linseed Oil—**
Rio de Janeiro, 2 c.
**Litharge—**
Amsterdam, 5 c.
Copenhagen, 12
Riga, 2 t. 5
Gothenburg, 1 1
**Magnesia—**
Antwerp, 1 c.
Hamburg, 1
Lisbon, 1 t. 18
**Oxalic Acid—**
Genoa, 1 t. 10 c.
**Painters' Colours—**
Rio de Janeiro, 9 c.
**Sheep Dip—**
Falkland Isles, 35 t. 1 c.
**Soda—**
Amsterdam, 5 t. 7 c.
Lisbon, 5 7
Copenhagen, 3 4
**Soda Ash—**
Copenhagen, 10 t. 9 c.
Riga, 10 2
Trondhjeim, 5 8
**Sodium Hyposulphite—**
Riga, 10 t.
**Sodium Sulphate—**
Copenhagen, 10 t.
Wasa, 158 1 c.
**Sulphur—**
Antwerp, 10 t. 1 c.
Riga, 35
**Sulphuric Acid—**
Falkland Isles, 1 t. 10 c.
**Superphosphate—**
Copenhagen, 5 t. 17 c.
Esbjerg, 4 18
**Tar—**
Copenhagen, 1 t.
Tromsoe, 4¼
**Turpentine—**
Rio de Janeiro, 1 c.
**Varnish—**
Tromsoe, 2 t.
**White Lead—**
Hamburg, 4 c.
Copenhagen, 4 t. 2
Gothenburg, 11

## GRIMSBY.

*Week ending August 20th.*

**Chemicals** *(otherwise undescribed)*
Dieppe, 11 cs. 10 cks. 209 pkgs.
Hamburg, 76 121
Rotterdam, 15
**Coal Products** *(otherwise undes.)*
Dieppe, 134 cks.
**Dyestuffs** *(otherwise undescribed)*
Dieppe, 5 cks.
**Manure—**
Esbjerg, 3,435 bgs.

## GOOLE.

*Week ending August 17th.*

**Bleaching Powder—**
Antwerp, 15 cks.
**Chemicals** *(otherwise undescribed)*
Ghent, 1 cs.
**Coal Products** *(otherwise undesc'd.)*
Ghent, 20 cks.
**Dyestuffs** *(otherwise undescribed)*
Antwerp, 4 cks.
Ghent, 16 1 dm.
Rotterdam, 20
**Manure—**
Antwerp, 200 bgs.
Dunkirk, 300
**Pitch—**
Antwerp, 142 t.

# PRICES CURRENT.

WEDNESDAY, Sept. 7th, 1892

Prepared by Higginbottom and Co., 116, Portland Street, Manchester.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids :—** | | | | |
| Acetic, 25 °/₀ and 40 °/₀ | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | 50/- | | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 °/₀) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ( ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 5 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 3 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 9 | 17 | 6 |
| ,, ,, (grey) Hull | ,, | 9 | 17 | 6 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 9 | 7 | 6 |
| ,, Liquor, 7 % | ,, | 3 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes :—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8¾ |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 10 |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 7 |
| ,, 50/90 ,, | ,, | 0 | 1 | 3 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 7 |
| ,, (crude 60°) | per gallon | 0 | 1 | 8 |
| Creosote (ordinary) | ,, | 0 | 0 | 1½ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 0 | 11 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 44 | 5 | 0 |
| ,, Sulphate | ,, | 15 | 5 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 12 | 6 |
| ,, Litharge Flake (ex ship) | ,, | 14 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, ( brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 6 | 0 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 4 | 0 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 3 | 9 |
| **Oils :—** | | | | |
| Cotton-seed | per ton | 18 | 15 | 0 |
| Linseed | ,, | 20 | 0 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 7 |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 10 | 0 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10¼ |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 | 0 |
| Silver (metal) | per oz. | 0 | 3 | 2½ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 48% | ,, | 5 | 7 | 6 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, | 6 | 5 | 0 |
| ,, ,, (Soda Crystals) | ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 18 | 10 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 10 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8 |
| ,, Borate (Borax) | net, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | net pr. ton (10 ton lots) | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 15 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 4½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¾ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 10 | 6 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7 |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7½ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone : Best Quality (nominal) | ,, | 5 | 0 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 95 | 10 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 20 | 7 | 6 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# IEMICAL TRADE JOURNAL

AND

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s intended for insertion in the current week's issue office by **Wednesday morning** at the latest.

## THE CAREER OF THE CHEMIST.

OUR excellent, if sometimes heavy contemporary, the *Chemical News*, eloquises in the editorial to the students' number of last week, on the theme of a chemical career. It is much to be regretted that our great naturalist, Thackeray, should have allowed the devotees of science to go "*unwept*, unhonoured, and unsung" in his immortal Snobology, and that it should fall to the lot of latter day imitators, even ourselves, to chastise with only second-hand scorpions this newest prostration before the Golden Calf.

We will not dilute the words of the prophet who writes to young men setting out to overcome the world in the ranks of the chemical profession; and we only refrain from reproducing *in extenso*, a harangue so complete in its "preciousness," for the want of type, ink, and even paper of corresponding preciousness. It is moreover quite unnecessary to premise that the words we are about to quote (perhaps it were better for us to say, rather, the samples we are about to submit) make us keenly conscious of our far-off inferiority.

"We have indeed," says this Unknown Prophet, "had amongst the aristocracy men of genius, such as Robert Boyle, and Henry Cavendish. The names of Lords Rayleigh and Walsingham are honourably known. But these *savants* inherited their peerages, and would have held the very same rank had they been the most utter blockheads." Mark that ye peers! and rejoice that there is a higher law of heredity than that of 19th century "invention." "In short," continues the U. P., "until within the last few years the highest rank which a *savant*, as such, could hope to reach was that of baronet." Note that, beknighted chemist-savants! Ye *were* of the penultimate order of distinction. "But," says the U. P., "now a new day seems to be dawning . . . an honourable ambition (*i.e.* ambition for honours) may find its reward in the realms of science as readily as in those of law or finance. No one, we trust, will be perverse enough to hint that we advise young men to study physics or chemistry with a *view* to a possible peerage. Such a reward will hardly fall to the lot of one in ten thousand! But the honours conferred upon *Lord* Kelvin and *Lord* St. Andrews." (Note the perversion of history: *the* honours were conferred upon William Thomson and Lyon Playfair) "honours which can be understood" (a long way "under") "even by the most stolid Philistine, will irradiate and encourage even the humblest of their colleagues." Our U. P. is evidently quite dazzled, and if, in these realms of social distinctions the "ordinary" laws of nature are even approximately operative, and we may take the intrinsic luminosity of a peerage as appreciated according to the inverse ratio of the square of distance, what must be the degree of "encouragement" to scientific knights, privy councillors, and members of Parliament? They have only to be a little more scientific and then . . . the very Elysium of Social Salvation.

We may be "perverse," and our Philistinism is, no doubt, of the last order of stolidity, but our sympathies are with the

9,999 workers first, by reason of their mere calling, and with the one afterwards that he *also* finds his reward, or rather appropriates the reward which the superior ethics of the Chinaman would accord to his ancestors. ("Darwinian" peers please note.)

One word of our own to the students, in conclusion. Study the remarkable combination formed by the four elements, "S, N, O, B." The compound is widely distributed, and has important physiological functions, but owing to the difficulty of isolation it has probably never been obtained in a state of purity. A complete study of this compound would carry an intrinsic reward even more satisfying and lasting than a peerage.

### A WORD TO PAPER AND VITRIOL MAKERS.

In our columns this week will be found an exhaustive and highly instructive article on testing paper. The great difficulty which have hitherto stood in the way of the mechanical and chemical testing of paper, has been the want of some definite information upon methods which have stood the test of practical experience. The scheme which we this week present to our paper-making friends is essentially practical, and having been to special trouble in this matter, it is with pleasurable confidence that we commend the same to their notice.

Next week, also, we anticipate putting before our readers a table for calculating the weight of a one-inch layer of vitriol of different strengths, in terms of pounds per square foot. This table has been specially prepared for the Journal, the utmost care having been taken to avoid error in any shape or form. Seeing the large number of persons to whom a table of this kind would be useful, we have also done our best to adapt the same to the requirements of those who wish to cut out and mount this table for constant use, deriving for themselves permanent benefit thereby. Extra copies or reprints may be obtained by those who wish to retain their journals intact for future binding.

## THE ECCLES GAS SUPPLY.

As anticipated last week, we are now able to present to our readers an abstract of the report of the committee appointed to inquire into the supply of gas to Barton, Eccles, Winton and Monton, which report was presented on 5th September of this year.

### REPORT OF THE SPECIAL COMMITTEE.

We the undersigned, being the committee appointed by the Local Board to obtain information respecting the gas supply for this district, think it very desirable, owing to the great importance which attaches to the question to now furnish you with all the information at our disposal. In our opinion it is the most important matter which the Board has been called upon to decide during its whole existence.

We also desire to state that, having gone into this matter with very great care and consideration, and having carefully perused the evidence given on both sides before the House of Lords and the House of Commons, in regard to the Swinton Gas Bill (March, 1892), and which can be seen at the Town Hall, Eccles, any time during business hours, we think it will be to the advantage of the gas consumers and the ratepayers of the district if they consent to the Local Board taking the preliminary steps for passing a local Gas Bill through Parliament. The Board must of necessity do this, if you take advantage of the clause obtained from Salford, in the Provisional Order, 1891, since owing to the limited time allowed for depositing a Bill the new Council to be elected on November 1st cannot possibly comply with the Parliamentary regulations relating thereto.

The committee at your request approached the Salford Corporation with a view to getting the differential rate abolished, and have published a detailed report of their efforts in that direction. This report in substance, shows that the Salford Gas Committee decided to reduce the price of gas 2d. per thousand cubic feet, to all the out districts, the price thus becoming 2s. 6d. per thousand cubic feet. This was the utmost it would do. You will observe that we have no guarantee nor will the Salford Corporation give any undertaking, that the d rate shall not exceed 2d. per thousand cubic feet to the out But at any time it can advance the price, and, if our ratepay the present opportunity to manufacture gas to pass by ther reason to expect that the present charge will not be mainta that at no distant date it will be advanced.

Now what are the limitations upon the Salford Corporation Their maximum price is 5s. per thousand cubic feet.

The actual cost of making and supplying gas, including inte capital and contribution to sinking fund, was in

| | 1887. | 1888. | 1889. | 1890. | 18 |
|---|---|---|---|---|---|
| | 2s. 5½d. | 2s. 3¼d. | 2s. 1½d. | 2s 3¼d. | 2s. |
| Profits .. | £32,741 | £38,536 | £37,135 | £12,968 | £2 |

Within the limit of 5s. per thousand they may, of cours what price they please, and there is therefore no limitation but so long as the price does not exceed an extravagant and i limit, the Corporation may take, say, 20 or 30 per cent. u investment in our district if they choose. Now where outs ships are contributing to such profits this is a very serious cons You have yourselves for example no voice in the control of S undertakings; and the only interest of the supplying Co towards you is to make as large a profit as possible.

The contention in this district has been for years that whi such as have been stated are being made, it is grossly unfair t charging Eccles a specially high or differential rate. If no pr made the out townships should pay something extra, because tribute none of the capital and take none of the risks. B large profits are made which all go to Salford it is an insult to like Eccles to insist upon its paying a double share of them.

In the case of Oldham the out-districts obtained a Parl order defining the amount of capital, limiting the profits to 6 upon the sum actually owing by the Corporation from year t account of their gas works and abolishing the differential r asked for these terms from Salford, and were told that on n would it abolish the differential rate.

Should you decide to manufacture gas, the consumers, bein payers, can exercise an important, even a commanding influe the administration of the gas undertaking; and further, as t made will be spent in public works or in relief of rates other consumer will feel that what he contributes to them he wi back, at least in part, as a ratepayer.

Here followed a table showing the chief prices charged fo the profits made by a number of important undertakings both small in Lancashire and Yorkshire.

Further, the report of the Gas Committee was also embodi Special Committee in their report, which is as follows:—

Gas Committee's Report,

Town Hall, Eccles,

2nd August

Gentlemen,—Your committee think it appropriate in p their report to state that at the ratepayers' meeting, held on February, 1892, certain ratepayers stated that they had confe the Salford Gas Committee, and had been informed that if ap by your Board that committee were prepared to abolish the d rate and possibly make further concessions.

In order the Board might know to what extent the Salford tion were prepared to go, and also to comply with the wish at the above meeting, the following resolution was submitted a by your Board on the 25th April, 1892:—"That a com appointed to approach the Salford Corporation with a view of ing what terms they are prepared to offer in connection wit supply for the district; and the committee shall report to the result of their interview, the Board submitting the same to payers for confirmation or otherwise."

We, the undersigned, were appointed by your committee to the resolution.

It is apparent that the one specific purpose for which appointed was to ascertain what concessions the Salford C mittee were disposed to make.

Considerable correspondence has passed between your comm the Salford Gas Committee, commencing on the 29th April, terminating on the 23rd July.

On the 18th inst., your committee finding that in the ever being unable to obtain satisfactory terms from the Salford C mittee, if they were to retain the right to promote a Bill in Pa that prompt action was imperative, addressed a letter to th Gas Committee, stating that owing to the limited time at th of the Eccles Local Board for taking steps to promote (if ne Bill in Parliament to supply this district with gas, the Sal poration be asked to receive the Board's deputation within s from this date; failing which the Local Board will consider a request unnecessary. As a result the Salford Gas Commit

'olock on Thursday the 28th August, for the interview, and mmittee attended accordingly.

e was a large number of members present at that committee, was presided over by Mr. Councillor Holland.

committee, for prudential reasons, took with them a shorthand knowing that it is customary for the Salford Gas Committee to e present. The Salford Gas Committee peremptorily insisted ars withdrawing, which your committee think very unjustifiable. ng been requested to state our business,

chairman of your committee stated the object of our waiting hem, and directed attention to the correspondence that had and read from the shorthand writer's report the words spoken Chadderton, at the ratepayers' meeting, February 26th, 1892, re as follows :—

vas one of the deputation who went to Salford, and I can assure l the Board if they are asked they will abolish the differential d more, if it is gone about in a business manner I believe you ke terms to go in for a share of profits. That is saying more hers have said. We had to read between the lines. But we versations with different members of the Council, and that is my "

Councillor Philips, chairman of the Gas Committee at the time tleman referred to waited upon that committee, stated that those nen were not authorised to make such statement, and this Gas ttee were not accountable for it ; he further said that neither , nor by implication, had they stated that they would abolish erential rate.

Hill stated that on the occasion referred to an absolute promise de to reduce the price 2d., and they were led to believe that if cal Board, the responsible authority, would meet them, they robably do away with the differential rate ; this also Mr. Philips ted.

Councillor Holland said the Salford Gas Committee had expected mmittee to make an application stating what was wanted, and mmittee replied that the correspondence from beginning to end that we were desirous to learn what concessions they would Your committee, however, reminded the Salford Gas Com- that the concessions they claimed had been frequently stated to oth by deputation and letter ; we, moreover, pointed them to cessions made by the Oldham Act to the outside districts.

committee were then invited to withdraw for a time, which d.

being again called into the committee-room, the chairman said : Committee are prepared to reduce the differential rate 2d. per d to the whole of the out districts."

chairman said that during the time the committee had been ing the matter we had conferred together and were prepared to a proposition for their acceptance, and it was based on the n in the Oldham case, and they would recommend its adoption r Board. The clerk then read over and explained the proposals, were :—

An adjustment of the capital account.

Abolition of differential rate.

Limitation of profits to six per cent. instead of 10 per cent , and

To be furnished yearly with a copy of the gas accounts.

eply to a question from a member it was stated by your committee the above arrangement was agreed to we should not expect to he profits.

Salford Gas Committee having intimated that they had decided atter, the chairman (Mr. Parr) asked whether the decision ced by the chairman was final, and Mr. Holland said it was, ated that they were not prepared to proceed with any further ations.

r committee having fully carried out your instructions according resolution of April 25th, 1892, earnestly request the Board to e earliest opportunity of placing before the ratepayers the result r interview with the Salford Corporation.

NATHAN PARR, Chairman.
JAMES C. MATHER.
JOSEPH HILL.
THOMAS BARLOW.

also submit for your consideration the report of Mr. Corbett ll, civil engineer, of London.

MR. WOODALL'S REPORT.

ing the price of gas now at 2s. 6d. per thousand feet, the on is, can you with a local works make and supply at that rate, ve a margin in hand. To the query I answer confidently, yes. he whole of the out-districts are supplied from the new works ill commence in the winter of 1894 with a sale of about 0,000 cubic feet.

| | | |
|---|---|---|
| This at 2s. 6d. will yield a revenue of ..... | | £24,395 |
| I estimate the cost of making gas of at least equal quality of that now supplied at 19d. per thousand, this amounts to 195,000 at 19d. ..... | | £15,438 |
| Leaving gross profits..... | | £8,937 |
| The capital necessary for the erection of the works, purchases of Salford property, re-arrangement of mains, etc., I estimate at £120,000. If this is raised at 3¼ per cent. the charges will be for interest ..... | £3,900 | |
| Sinking fund, 40 years at 3 per cent. ..... | £1,584 | |
| | | £5,484 |
| Balance to the good ..... | | £3,453 |

This you will see is equal to more than 4d. per thousand feet of profit. If the price recently charged by Salford, viz., 2s. 8d., is taken, the profit would be equal to more than 6d. per thousand feet.

The estimate cost of gas given above comes to 2s. 2d. per thousand, against 2s. 0¼d. at Salford in 1891.

You may be told that because of the reduced value of residual products from coal, the price of gas will go up. I think this very unlikely; but, if it should happen so, it will affect Salford equally with you, and they would raise your charges as well as their own.

Should you not supply the whole area but Eccles only, the margin of profit will proportionately to the business done, be equal to my estimate for the whole.

The piece of land selected by the Board near the Ship Canal is very well suited for the purpose. The position upon the side and below the level of the Ship Canal will give access to all the coal fields of the neighbourhood, and will ensure cheap delivery.

The land is also in a position where the manufacture of gas cannot be spoken of as a nuisance, and its level is all that could be desired for distributing from. The only objection is that it is rather far removed from the retail market for coke. Even in respect, however, to the supply of coke for the district, it will be very much better served than it is now when all that is used is brought from Salford.

To connect our proposed new works with the Main will involve the laying of about 1,250 yards of 20 inch main at a cost of £2,000.

When this is done all the other pipes will be served as they are now. This is a very small matter indeed, for convenience of connection the position of the new site is admirable.

If the whole out districts are supplied by Eccles, then an enlarged pipe would be laid up Green Lane and Folly Lane to the south end of Hartington Lane. This would cost £3,200., and would give complete command of the whole district. Some short lengths of pipes on the east side of Eccles would be rather larger than necessary, but the excess is hardly worth consideration.

The Electric Light is not a competitor likely to interfere with the steady growth of the gas business in your district ; but on the contrary, is not unlikely to add to it.

The best way to distribute Electricity in your district is, in my opinion, by means of gas, setting up small stations where the demand arises and working the dynamos by gas engines.

The members of your committee have now stated briefly all the facts of the subject in their possession. They desire that these should also be brought before the ratepayers, who, they sincerely trust, will give to this report their most serious consideration, and fully weigh over the same.

Signed, NATHAN PARR.
JAMES C. MATHER.
JOSEPH HILL.
THOMAS BARLOW.

## THE GAS SUPPLY OF SALFORD.

AT the last monthly meeting of the Salford Town Council the annual report of the Gas Committee was adopted. It stated that the reduction of twopence per 1,000 cubic feet in the price of gas, which was made at the beginning of the financial year in March, 1891, had had the effect of stimulating the consumption, as anticipated. The output in the year ended March 25th last was 66,125,000 cubic feet more than in the previous year, or 6·68 per cent., resulting in an increase of revenue amounting to £55. 0s. 11d., notwithstanding the reduction in price. There had also been an increase in meter and stove rents of £193. 3s. 8d.

THE VALUE OF RESIDUALS.

There was a decrease of £1,984. in the receipts for coke, of £333. for tar, and of £1,620. for ammoniacal liquor and sulphate of ammonia, making a total decrease of £3,937. The committee hoped that the falling off in the price of coke was but temporary, and that a better result might be obtained next year. There had been a steady decline

in the value of sulphate of ammonia, the price being now lower than it had ever been. Owing to the favourable contract made by the committee two years ago, the great fall in the price of tar had not affected this year's results. This contract would, however, shortly expire, and a new contract at the lower price now prevailing must be made. The entire reconstruction of the retort house at Liverpool-street works had been successfully completed during the year, and a considerable saving would be effected in the cost of handling the coal by the introduction of the hydraulic machinery. A marked improvement had already been effected in the make of gas per ton of coal carbonized in this retort house, and the work had been rendered much more healthy and comfortable for the men. The committee had contracted for the rebuilding and enlargement of another gasholder at Liverpool-street works, whereby the storage capacity would be increased by 1,000,000 cubic feet. These alterations would be completed and available for the coming winter. An accident fund for the relief of the workmen had been established during the year, and nearly all the men contributed to it. The number of claims upon the fund from September 9th, 1891, to March 25th, 1892, was nineteen, representing an amount paid of £33. 13s. 4d.

## THE STOCKPORT SEWAGE SCHEME.

AT the next meeting of the Corporation of the county borough of Stockport a motion will be made to adopt a scheme of sewerage intended to diminish the pollution of the river Mersey. The scheme has been prepared by Mr. A. M. Fowler, the engineer appointed by the Corporation to carry out the work, and is the result of surveys and borings which have been in progress during the past twelve months. It is proposed to intercept the sewage, all of which now flows direct into the river, and to carry it by means of a series of main drains to outfall works to be constructed on land acquired by the Corporation on the Cheshire side of the river at Cheadle Heath, almost opposite the Heaton Mersey Bleachworks. These main sewers will be built of brickwork, and for the most part will be formed in tunnel or drifting at a depth of 10ft. to 17ft. through gravel and red sandstone rock. The engineer proposes to ventilate the sewers by direct openings in the carriage ways, and where leave can be obtained by the erection of shafts at the gables of buildings. In the course of his report the engineer makes the following statement:—"Representatives of the Ship Canal Company have stated in public inquiries on which I have been engaged in works of this class in the Irwell watershed that the Company will be satisfied if sewage is diluted by eight times its bulk, or nine times the normal dry weather flow. I therefore propose to intercept the whole of the sewage and rain until the sewage reaches this proportion of dilution, and when the storm water flows above this volume such flood water will be allowed to flow into the river. The sewage thus flooded would, at short periods of time, amount to about 25,164 gallons per minute to be delivered at the outlet. The Ship Canal Company have therefore materially facilitated the solving of the question of the proportion of rainfall to sewage, and thus have prevented disputes which in all probability would arise in the absence of this their decision." It is intended to appropriate at first about 63 out of the 95 acres of land purchased by the Corporation, the whole area to be utilised as the volume of sewage to be dealt with in future may demand. Buildings will be erected near the outfall sewer to contain pumping machinery, boilers, grinding mills, agitating cisterns for incorporating the sewage with chemicals, mud-pressing machinery, mud pumps, and store rooms. Tanks or reservoirs will be constructed near these buildings. The sewage will here flow about 2ft. 6in above the ordinary summer level of the river, and the whole of the sewage will be lifted some 17ft. 6in. by means of a centrifugal pump. After treatment the sewage will flow through six tanks; the effluent will then be passed through open conduits by gravitation on to the land, which will be under-drained, levelled, and divided into sections or filter-beds on which the sewage will be discharged intermittently, and allowed to rest, and so passed through the land onward into the river. The land is found to be admirably adapted for the purpose, being sharp gravel and sand, and the surface of the 63 acres is 12ft. to 15ft. above the ordinary water line of the river. The engineer's estimate of the cost of the works is not yet to be made public, but there is a general idea prevalent that the expense may be anything between £80,000. and £100,000.

SERIOUS FIRES IN U.S.A.—The Lancaster Chemical Works, at Lancaster, Pa., were recently burnt down, stock to the value of £3,000. being destroyed. Owing to the poorness of the water supply the fire could not be properly coped with. The fire, it is believed, was the work of an incendiary. The Joilet Chemical Works have also been burnt down. The fire originated in the spontaneous ignition of some dry nitre which was stored in a cotton sack. The damage was computed at £10,000., of which, fortunately £6,600. were covered by insurance.

# Paper Makers' Column.

## PAPER TESTING AT THE PRESENT TIM

(*Translated for the Journal.*)

IN Germany, and other parts of the Continent, the testing is carried out in a very complete way. The following is a of a report published in the Papier Zeitung on the methods for this purpose, and laid before the Mid-German Paper So Mr. W. Hertzberg, head assistant in the paper-testing depar the Charlottenburg Laboratory:—

### TENSILE STRENGTH OF PAPERS.

By the strength of a paper we understand the measuremen resistance it offers to breaking or tearing strains. This resi always greater in the direction of the length of the web of pa is made on the paper machine, than across the web. On the ot the amount of elongation, which is measured while determi breaking strain, is greater in the direction across the web than to it. The tensile strength of the sheet, both across and paral web, are determined separately and the average values recorde

To ascertain the direction corresponding to the motion of machine, in any sample of machine made paper, a circular pie and placed on the surface of water, when it will be observed t The diameter of the disc where it is not curved indicates the of the length of the web. Other methods are also used for asc this, but are not so good as the foregoing.

The strips of paper used for ascertaining the tensile stre elongation are cut to the following size, viz:—180 m.m. long b broad. Five strips, at least, are taken from different sh representing the length and across the web in order to obt average values. These strips must be carefully cut; the edg be smooth and run parallel. Cutting tools are provided for pose, consisting of an iron ruler and plates of zinc or glass. deviation from the standard breadth does not influence the res

Before determining the tensile strength and elongation, care tion must be paid to the amount of moisture in the atmospher breaking strain of paper decreases with increase of moisture i whilst under the same influence the percentage amount of e increases. The humidity of the atmosphere is also very import testing animal sized papers, and should on no account be ov Indeed the breaking strain values can only be compared when obtained in atmospheres of equal humidity. The percentage atm humidity chosen is 65, because it is much easier to add moistu atmosphere than abstract moisture from it. The former is boiling water in the room, or by wetting the floor. The instr use for measuring the humidity of the air is Koppe-Saussure's a meter, the readings from which are reliable provided the instr adjusted once a week. Before testing, the strips of paper are the room containing an atmosphere of the above percentage for at least half an hour.

*Horack's Dasymeter.*—A number of machines are used for e the tensile strength and percentage elongation, the above nam is so well known and much used, is uncertain, and cannot be for investigations that lay claim to be made with accuracy.

In the *Hartig-Rensch Apparatus*, the strips are torn by me spiral spring giving a pencil tracing, and at the same time a from which the breaking weight and amount of stretch is de by measurement.

*Wendler's Apparatus* is constructed on a similar principle, t being also applied by a spiral spring, but the results are give By a moveable adjustment, constructed by Prof. Martens, the is thrown out of action immediately the paper strip is broken.

These apparatus provided with springs must be frequently r or tested to prove that they are correct, as the springs are s alterations. This should be done every three months.

*Chopper's Apparatus* is constructed on the principle of a balance, the strips being torn by a weight. Spiral springs are on this machine. The instant the strip is broken the power pansion levers are released, but remain unaltered in positio form of machine is the best known at the present time for work.

Many other forms of apparatus are known but cannot be recor for accurate work.

### CALCULATION OF THE "BREAKING LENGTH."

The "breaking strain" determined by means of one of thes tuses, cannot by itself be employed to determine the streng paper because this is dependent on the width and thickne paper. If one could determine exactly the thickness and thus the sectional area, the breaking strain per cubic millimetre the best measure for the valuation of the strength. Since this,

ssible, one may calculated according to the proposal of Prof. ;, the "breaking length" of the paper. We understand by ı, that length of a strip of arbitrary but uniform width and s which in consequence of its own weight when hung up by one ks at the point where it is held. This length may of course be d from the "breaking strain." For example G = the weight nes of a strip of 0·18 metre, which breaks under a strain of K. be calculated how long the strip must be in order to weigh nes. X = this length in metres.

$$\text{n } \frac{0{\cdot}18}{G} = \frac{X}{K} \quad \text{or } X = \frac{0{\cdot}18 \times K}{G} \text{ metres.}$$

RESISTANCE TO RUMPLING AND RUBBING.

form a necessary supplement to the values for tensile strength, ) mechanical apparatus is constructed for this investigation. sheet of paper is rolled up and is then held by both hands and after the manner employed by women when washing clothes ittle experience it is not difficult to distinguish eight different of resistance, the number customarily adopted in the Testing ment at Charlottenburg, viz. :—

| | | | |
|---|---|---|---|
| Extremely weak | | 4 | Moderately strong |
| Very weak | | 5 | Strong |
| Weak | | 6 | Very strong |
| Medium | | 7 | Extremely strong |

ight, it would appear that the difference in the stages of the ssification is so small that it is scarcely possible to separate h certainty; but this uncertainty vanishes as soon as the opera- cquired sufficient practice.

THICKNESS OF THE PAPER.

neasurement of a heap of paper with a millimetre scale and ng the thickness of a single sheet from the total number in the been found to be inaccurate. The instrument used for measur- hickness is so constructed that a micrometer screw provided at with a die, is worked towards another die, also provided with fixed to the stock of the instrument. The paper is laid be- e dies and the thickness ascertained by moving one of the which a scale is attached. One division of the scale corres- 0·005 of a millimetre.

MINERAL RESIDUE OF PAPERS.—ASH.

nstituents of the paper left after burning and perfect ignition ack carbonaceous matter is called the ash. This is derived om the fibre, partly from the sizing materials, but in the of cases from the loading materials. Pure fibres, chemically from fibrous plants, etc., contain as a general rule less than ent. of ash. For example :—

| | | | |
|---|---|---|---|
| od .. .. | 0·43 % | Unbleached Linen .. | 0·76 % |
| .. .. | 0·39 ,, | ,, Cotton .. | 0·41 ,, |
| our (white pine) | 0·41 ,, | Hemp .. .. | 0·69 ,, |
| Linen .. | 0·94 ,, | Bleached straw pulp | 0·86—1·22 ,, |
| Cotton .. | 0·76 ,, | Mitcherlich cellulose unbleached | 1·25 ,, |
| Pine Cellulose | 0·53 ,, | Sulphite pulp bleached | 0·42 ,, |

are not absolute values; they depend upon the place of f the plant and the mode of preparing the pulp, etc.

es are specially constructed for determining the ash or mineral The best known are Post's Ash Balance and Reimann's Sub- Balance. The latter is the more perfect apparatus. In both, ng operation takes place in a net work of platinum wire and nt of ash is read off in per cents. For correct determinations a f the paper is dried at 100° C. till the weight is constant, and eighed portion of this put into a platinum crucible and ignited arbonaceous matter is burnt off. An analysis of the ash is s made in order to gain a knowledge of its composition.

MICROSCOPICAL EXAMINATION OF PAPERS.

things are aimed at in the microscopical examination, namely, ine :—

1st The kind of fibre.
2nd The quantity of fibre.
3rd The state of the fibre.

r to arrive at these it is first of all necessary to carefully choose and previously prepare it for treatment with certain fluids. pieces are cut from different parts of the sample sheets and about a quarter of an hour in a dilute (1 %) solution of caustic lissolve the size and starch. The pulp, etc., is then washed r on a fine sieve and transferred to a glass flask and shaken vater to separate the fibres from one another.

or water with glycerine, is not suitable for preparing the fibres emain uncoloured and are in consequence difficult to dis- In the Charlottenburg Testing Establishment a solution of d aqueous potassium iodide (20 c.cs. $H_2O$; 1·15 grm. iodine; 2 grms. KI., and 1 c.c. glycerine) is preferably used; or an aqueous solution of iodine and potassium iodide containing chloride of zinc. In the latter case the fibres must be carefully dried between filter paper before treating them with the solution. The general appearance of the fibres after soaking in this solution will be as follows :—

| | Solution of Iodine in KI. | Solution of Iodine in KI with $ZnCl_2$. |
|---|---|---|
| Linen and Hemp ..... | Brown | Reddish to brown |
| Cotton ..... | ,, | ,, |
| Wood pulp (chemical) .... | Colourless to grey brown | Bluish to blue |
| Straw do. ..... | ,, ,, | ,, |
| Esparto do. ..... | ,, ,, | ,, |
| Jute, bleached ..... | ,, ,, | ,, |
| Wood flour (mechanical wood pulp) | Dark yellow | Citron yellow |
| Jute, unbleached ..... | ,, | ,, |

These colourations cannot be regarded as definite reactions. They only indicate in a general way the presence of certain fibres. A decision should always be based on the anatomical structure of the fibres themselves.

A solution of sulphuric acid and iodine, proposed by Höhnel, colours fibres in a similar way to the above iodine and zinc chloride solution.

*Linen and Hemp.*—The anatomical characteristics of these two are :—The regular structure of the fibres, the broken ends, and the straight, narrow, hollow canal. Natural ends seldom occur.

*Cotton* fibres possess a wider hollow canal, are flat and frequently twisted. Their membrane walls often show lattice formed stripes. Natural ends seldom occur.

*Cellulose fibres*, prepared from pine wood (*Coniferæ*), are distinguished by pitted cells or pores, and many natural ends, which have mostly a blunted form.

*Cellulose from leaf woods* is known and distinguished by the hetero- geneous forms of numerous vessels which are present.

*Straw pulp* is especially recognised by the more or less strongly marked epidermal cells. The parenchyma and bast cells serve further to establish its presence. The isolation of the different kinds of straw pulp is difficult, and is of little value.

*Esparto pulp* shows the same kind of cells as straw, but in smaller number. The large thin-walled parenchyma cells are absent in esparto, whilst they are peculiar to straw, but in many cases are present in smaller quantity.

*Jute* is best known by its irregular hollow canal, the width of which often passes from one extreme to another within a short length. Some- times within the microscopical field it is seen as a narrow line, whilst in others it embraces for the most part the width of the fibre. In packing papers we find, moreover, the bast cells chiefly united to thick bundles, an appearance which in fine papers, in which the jute is bleached and strongly beaten, would not otherwise be observed.

*Wood flour* (mechanical wood pulp) is very easily known by its yellow colour, its irregular structure, and torn appearance, its strongly marked pores, and its radiated cells.

QUALITATIVE TESTS FOR WOOD PULP (GROUND WOOD OR WOOD FLOUR) IN PAPER.

The behaviour of certain reagents on woody fibres serves to show their presence without the aid of the microscope. These reagents are applicable with certain restrictions.

An aqueous solution of naphthylamine acidified with hydrochloric acid (5 grms. naphthylamine dissolved in 50 grms. of hot $H_2O$ and 1·2 grms. HCl, and filtered) colours papers containing mechanical wood pulp orange yellow.

Sulphate of aniline (5 grms. dissolved in 100 grms. of water) colours papers containing mechanical wood pulp a beautiful bright yellow.

An alcoholic solution of phloroglucin, containing hydrochloric acid (4 grms. phloroglucin dissolved in 25 c.cs. of alcohol and 10 to 15 grms. concentrated HCl), colours mechanical wood pulp papers a powerful carmine red. This reaction, introduced by Wiesner, is the best and most beautiful for ascertaining the presence of mechanical wood pulp.

There are, however, other woody fibres employed in the manufacture of paper, which are coloured by the above quoted reagents, in a similar way to mechanical wood pulp: for example, the refuse from coarse hemp and linen rags, as also unbleached jute, both of which occur in packing and envelope (bag) papers. The reaction is therefore somewhat restricted. It should also be noted, with reference to the phloroglucin reaction, that some dyes, *e.g.*, metanil yellow, used for colouring and shading paper, yield a red colour with acids. Such papers would obviously give a mechanical wood pulp reaction. The aniline sulphate reaction will enable the operator to distinguish in such case. If any

doubt should arise in the investigation of wood pulp papers by the chemical reactions, resort should be taken to the microscope, and a decision founded on the anatomical structure of the fibre.

Solutions of the above strength are always used so that the operator may form some judgment as to the quantity of mechanical wood pulp present.

QUANTITATIVE DETERMINATION OF GROUND WOOD IN PAPER.

A. *Colour tests.*

Gödicke produces a yellow stain with aniline sulphate, and compares the depth of colour obtained with a scale, the shades of which represent certain percentages of mechanical wood pulp.

Dr. L. Gottstein proposes to count the coloured fibres occurring within a certain area, forming a table which could be used for determining the percentage.

Dr. Wurster uses filter paper saturated with dimethylparaphenylendiamine (*di papier*) which colours wood flour red. A small piece of the "di papier" is saturated with water or acetic acid (1-2 drops) and laid between the folds of the paper to be investigated. The paper is coloured red if ground wood is present in it, and after drying, the stain, as in the case of Gödicke's test, is compared with an empirical scale.

In the Charlottenburg Testing Establishment the following method is employed. Small pieces of paper, containing known percentages of mechanical wood pulp, are steeped in a phloroglucin solution together with a sample of the paper to be tested. These are then placed on a glass disc and the shade of the sample compared with those of the standard papers. By comparing the nearest shade in transmitted and direct sunlight a near estimate of the percentage of mechanical wood pulp in the paper can be formed. This method is especially valuable in estimating small quantities of wood (1% can be distinguished) within the limits of 1-5 per cent. The thickness of the paper is taken into consideration.

B. *Analytical Methods.*

Dr. Müller suggested to dissolve cellulose (pure fibre) in cuprammonium by which, under certain precautions mechanical wood pulp is not attacked. Prof. Finkener has shown that this method is unworkable.

Godeffroy and Coulon employed the property which ground wood possesses of separating metallic gold from a chloride of gold solution. (*C. T. J.* 209, p 333). 100 grammes of pine wood should separate 14 grammes of metallic gold. This yields a figure as a basis for the estimation of the percentage of wood in paper. Prof. Finkener has, however, shown that the reducing action of the wood is not finished after 14 grammes of gold have been precipitated, and that on further boiling the reduction of the gold chloride still continues. This method is therefore not applicable for the purpose in view.

*Benedikt and Bamberger* show clearly, by means of S. Leisel's methoxyl-method, that lignin (woody substance) contains a somewhat high proportion of the methyl group. We understand by this term that quantity of methyl in tenths of a per cent. which separates in the form of methyl iodide, when the substance is boiled with hydriodic acid. The methyl iodide when passed into silver nitrate solution precipitates silver iodide and may thus be determined. The following was found on an average for :—

| | | | | |
|---|---|---|---|---|
| Pine | Wood | methyl | number | = 22·6 |
| Fir | ,, | ,, | ,, | = 24·5 |
| Ash | ,, | ,, | ,, | = 22·6 |

The determination must be carried out with great care. It is not practicable if the paper contains sulphate of lime or barium, and therefore an analysis of the ash is necessary before testing.

An exact determination of the quantity of wood in papers is of importance in cases of dispute only. In most cases it is simply necessary to estimate the quantity present to within 5 per cent.

DETERMINATION OF THE KIND OF SIZING.

A. *Animal Size.*

1. The largest possible quantity of the paper (say 1 or 2 sheets) is boiled in water, filtered and freshly precipitated yellow oxide of mercury added to the filtrate and this again boiled for 15 minutes. If animal size (gelatine) be present the mercuric oxide will be reduced to metallic mercury, the yellow colour being transformed to black. The black precipitate is placed on a filter and washed first with water and then with diluted hydrochloric acid ; a black residue should remain on the filter. This reaction is not very sensitive, and therefore has been replaced by the following one.

2. A sheet of the paper is digested in boiling water and the liquid filtered. When the filtrate is cold a few drops of tannic acid solution are added, when, if animal size is present, a thick, milky-white precipitate will be formed.

B. *Resin Size.*

1. Half a sheet of the paper is digested in alcohol in a warm place and the fluid poured into a large volume of distilled water. A white turbidity is formed if resin size is present. This reaction is not very sensitive but its sensitiveness can be increased by adding a few drops of acetic acid to the alcohol.

2. A few square centimetres of the paper are boiled several ti a flask with 3 to 4 c.c. of acetic acid, and the fluid then diluted with water. If resin is present, a thick white precipi formed.

3. Marawski macerates a few pieces of the paper in anhydrou acid and after cooling, allows a drop of concentrated sulphuric flow down the side of the glass vessel into the mixture. In the p of resin a red colouration is formed which gradually fades.

4. At Charlottenburg the following simple method has adopted. Four or five drops of ether are placed on the paper tested and allowed to evaporate. If resin sized, the edges of the when held up to the light will appear transparent. This met recommended on account of its simplicity and especially in the i gation of books, prints, etc., as these are not damaged.

C. *Starch.*

Starch, as a size, scarcely ever occurs alone ; it is, howeve with animal and resin size.

The iodine solution used for the microscopical purposes is with water till it is of a pale yellow colour. This solution prod blue colouration on papers containing starch.

DETERMINATION OF THE AMOUNT OF SIZING.

Leonhardi and Post drop over the surface of one side of the p few drops of a solution of chloride of iron (1'531 % Fe.) These are allowed to act on the paper a few seconds according to its thic then the remainder of the solution is removed with filter paper. other side of the paper is then streaked with an aqueous soluti tannin, and if the paper be not well sized black flakes appear : wise there is no change.

Schluttig and Neumann have modified this method. They all chloride of iron solution to flow over one side of the paper held oblique position and the tannin solution over the other.

The degree of sizing often varies in a sheet, at times one half well sized whilst the other half is not.

## CHEMISTS AND THEIR STILLS.

We have much pleasure in publishing the following letters acquaint all analytical chemists with the exact attitude Inland Revenue in regard to the licensing of stills used for the p tion of distilled water.

The Institute of Chemistry,
9, Adelphi Terrace, Strand, W
September 10th, 1

Dear Sir,—It may be of interest to your readers to know th following letter has been received from the Excise Authorities i to a memorandum laid before them by Mr. Carteighe (Vice-Presi in accordance with the request of the Council of the Instit Chemistry.

I am, Sir,
Yours truly,
G. H. Robertso
To the Editor *C. T. J.* Secret

Inland Revenue,
Somerset House, London, W

Sir,—Having laid before the Board of Inland Revenue you of 28th July, I am directed in reply to acquaint you for the infor of the Council of the Institute of Chemistry, that the Board h desire to extend the obligation to take out a licence, to an chemists using stills solely for purposes of distilling water. analytical chemist, called upon to take out a licence by one Board's officers, will submit his case to the Board, they will be p to give the matter careful consideration.

I am, Sir,
(Signed) Your Obedient Servant,
W. B. Heberden,
To M. Carteighe, Esq. Assistant Secre

The Strassfurt Industry.—According to the report Strassfurt Potassium Syndicate the total production in metrical the various products during the past half-year is given below corresponding figures for 1891 are also given by way of comparis

| | Jan.—June, 1892. | Jan.—J 18 |
|---|---|---|
| Kainit and sylvine | 37,900 | 32, |
| Carnalite | 5,500 | 5, |
| Kieserite | 2,500 | 2, |
| Potassium chloride | 10,200 | 14, |
| Miscellaneous | 2,400 | |

During July the imports of alkali from Great Britain amo 10,795 cwt., as against 7,871 cwt. in July, 1891.

## THE NEW EXPLOSIVE AMMONITE.

OD deal of interest was centred at Newport (Monmouthshire) st week in the trial of the new explosive, ammonite. The test de in blowing down a heavy stone wall of 920 cubic feet capacity the Alexandra Dock from an extension dock which had just mpleted. Water had been let into the new dock from the sk, and a level made with the water in the older dock. In remove the wall dividing the two, it was decided to try the e force of ammonite fused by electricity. Charges of a hundred of the compound were placed in 43 drilled holes, under the n of Mr. Wilcox, the Explosives Company's Works manager, Butterfield the chemist, and a dynamo at 110 volts was con- with the charges. Lord Tredegar, as chairman of the dock y, worked the electric switch, and the explosion which followed sidered highly satisfactory. It was not intended to demolish l entirely, but to so split and crack it that the masonry could e dislodged and removed. The result, says the *Times*, was lly attained, the wall being loosened all through from top to without any damage being done to the surrounding works at k. Ammonite is one of the Spengel class of explosives. It of ammonium, nitrate, and nitro-naphthalene, mixed together lge runner mill at a certain temperature and afterwards filled tallic cases. One of its chief advantages is that for many pur- is perfectly harmless, and cannot be fired by ordinary concussion by throwing it into an open fire. Its explosive properties are ought out in the case of a detonator containing fulminate of . It is getting into extensive use in collieries where, by careful with clay, it is possible by electric firing to prevent the appear- any flames, which is a distinct advantage in mines where gas is in large quantities.

## NOTICES.

### LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of

THE CHEMICAL TRADE JOURNAL

From

MR. JOHN HEYWOOD,

2, Amen Corner,

Paternoster Row, E.C.,

sual trade terms.

### FOREIGN REMITTANCES.

g to the inconvenience created by the various ways in which subscriptions are remitted, we respectfully beg to inform ers that a *Crossed* MONEY ORDER is the most satisfactory of remitting, both for them and ourselves. In the case of a Order, a letter advising us of same should always be sent, se, owing to post-office formalities, much delay in tracing and ledging foreign remittances is inevitably entailed in this country.

## Correspondence.

*do not hold ourselves responsible for the opinions expressed by our correspondents.*

### *ANSWERS TO CORRESPONDENTS.*

lany thanks for report. We shall attend if possible.

, (St. Louis).—Letter to hand for which many thanks.

iens).—We have complied with your request. We trust the exchange e beneficial to you.

t is a very small quantity. Usually not more than ·01 per cent., and in samples we have often found as little as ·001 per cent.

—There is a pamphlet published by the Sulphate of Ammonia Manufacturers iation, which will give you the information you require.

ou are too late. The matter has already been decided. These things to be taken in hand at an early date. We were glad to receive your stion, however.

### E INSTITUTE OF CHEMISTRY EXAMINATION.

*(To the Editor of the Chemical Trade Journal.)*

—Having read "A Candidate's" letter in your issue of the 27th I would like to make a few further remarks upon the manner the examination was carried out.

one of the most objectionable features of the examination was m of "spying" which was carried on during the whole five days. Every ten minutes one of the assistants would come round, note-book in hand, ask you questions, make a note and pass on. This was very annoying, especially in the "balance room," where an assistant stood all day, and every time you had a weighing to do he was at your back taking notes. Any chemist knows how unpleasant it is to be interrupted at the "balance," and I can safely say this was the cause of a great many errors and considerable loss of time.

Secondly, your correspondent does not criticise the amount of work given. There is no necessity for doing so; the papers speak for themselves, and it is well seen that an Oxford man had something to do with the setting of them. As regards the "apparatus," it had all to be fitted up by the students themselves, and in order to procure it you had to leave the laboratory and go to another room, where there were two men to attend thirty-eight, the result being a loss of sometimes ten minutes.

Thirdly, a few weeks before the examination a paper was sent to each candidate, which contained a list of work. He was asked to cross out any work in this list which he had not done, and to return this to the secretary with his application form. On their prospectus they distinctly state that the quantitative work will be selected from the candidate's own record. Well, Sir, on the fifth day a paper on "Gas Analyses" was set. Some of the candidates had never done this work before, owing to having received the paper referred to at the outset, and had crossed it out on the above-mentioned paper. They were asked what was their experience in gas analyses, and of course their answer was "none." They were then told "they should not have come there," and on informing the examiner about the above-mentioned paper he said "it referred to last year's examination, and had nothing to do with present one." This, Sir, is the way the Institute of Chemistry do business.

I am sorry to have to differ with you about the bringing of the candidates to London. Last year the men who were examined in London had to put up with bad arrangements the same as we had this year; but owing to these arrangements the men were all allowed the examination, and this fact makes it all the more galling to those who were unsuccessful at the last examination.

Apologising for trespassing on your valuable space,

I am, yours, etc.,

ANOTHER CANDIDATE.

[Touching the third paragraph of the above, we should say "Another Candidate" had studied the instructions issued by the Institute to candidates in a very superficial way, as he has evidently misinterpreted one statement.—ED., *C.T.J.*]

## Trade Notes.

A BELGIAN OIL FACTORY ON FIRE.—A Brüssels telegram states that considerable damage was caused, on Friday last week, by a fire which broke out in an oil factory at Molenbeck.

ELECTRIC LAUNCHES AT CHICAGO.—Electrically propelled launches to the number of forty, are to be provided for carrying passengers on the lagoons of Jackson Park during the World's Fair. A contract for their construction has already been made with a New York firm.

CHEMICAL ENTERPRISE IN U.S.A.—A concern to be known as the "Chemical Association" is erecting works at Rumford Falls, Me., for the manufacture of bleaching powder and caustic soda. They expect to be in working order in October, and expect to turn out three tons of bleaching powder and one and a half tons of caustic soda per day to begin with.

HARDENING PLASTER.—A process for hardening plaster casts has been communicated to the French Chemical Society by M. Dennstedt. He tempers the plaster with a concentrated aqueous solution of dialysed silica, which causes a very rapid setting of the plaster, and the work may be immersed in or receive several coats of the same solution, after which it is coated with a solution of baryta heated to 60 deg. or 70 deg. C.

FIRE AT A BURY PAPER MILL.—About noon on Tuesday a fire was discovered in the calendering room of Messrs. Crompton's paper mill, Bury. The fire was soon suppressed by means of the hose pipes belonging to the firm and the Corporation brigade, but damage was done to the amount of a few hundred pounds. In the room above was a stock of tissue and other fine papers, valued at £25,000.

THE CULTIVATION OF INDIGO IN JAVA.—We learn from Messrs. Bunge and Co. that the prospects in regard to indigo cultivation in Java are by no means encouraging. The second cutting of this season's crop is now completely finished, and in all probability the third cutting will be very small, the crop on the whole having been during this year

by no means favourable. In consequence of this several planters are abandoning the cultivation of indigo and those who plant tobacco are devoting a larger area to the cultivation of this latter article in place of indigo. We learn from the same source that it is anticipated that the majority of indigo cultivators will turn their attention to the productions best suited to the Java, rather than to the European markets.

German Sugar Factories on the Advance.—Last year was, generally speaking, very favourable to the German sugar factories, as is shown by the following details:—The Cares sugar factory in Dirschau with a joint stock capital of 600,000 mks. obtained a profit of 201,788 mks. out of which a dividend of ten per cent. was declared. The sugar factory at Radegast declared a dividend of 17 per cent., that at Wendersen 20 per cent., that at Zuckendorf 22½ per cent., the sugar factories at Glazig and Körbisdorf each 12 per cent., that at Camburg 31 per cent., and that at Gross-Gerau 50 per cent. (in the preceding year 42 per cent.).

Metallic Tungsten.—Dr. Martin Krieg, of Magdeburg, prepares pure metallic tungsten in the following manner: The finely ground tungsten mineral is made into a porous mass with fine carbon and tar or pitch. This mass is placed in the voltaic arc of the Jablochkoff system and chlorine introduced through the hollow candles. The candles can be made to furnish the chlorine by adding chloride of lime and silica to the material from which they are made. In either case chloride of tungsten is produced together with chloride of other metals. If these chlorides be boiled in concentrated hydrochloric acid, oxide of tungsten is thrown down, the other chlorides are dissolved. The oxide is separated by decantation and washed. This oxide, mixed with carbon, can be easily reduced in the voltaic arc in an atmosphere of neutral gas.

Determining Sulphur in Coal.—The importance of employing the most accurate method available for estimating sulphur in coal is a fact which we need hardly emphasise, seeing how extensively chemical tests are employed as the means of ascertaining and maintaining the quality of coal as a fuel. Some difficulty has however always attended this estimation, and it appears that the well-known Eschka's method is by no means infallible, the mixture of sodium carbonate and magnesium hitherto employed giving low results. If, however, potassium carbonate be substituted for the carbonate of soda, the whole of the sulphur is fixed and accurate results can be obtained.

Messrs. Sadler and Co., Ltd., chemical manufacturers, of Middlesbro', have issued their annual report. The accounts for the year ending June 30th show a credit balance of £13,103. 17s. 1d., which has been applied in the following manner:—Interest on debentures and loans, £5,656. 5s. 2d.; depreciation and renewals, £5,617. 19s. 2d.; directors' (one half of the amount voted) and auditors' fees, £650; balance to be carried forward, £1,179. 12s. 9d. The year has been marked by a very serious shrinkage in the prices of the company's products, with the exception of bichromes, which have now been put on a satisfactory and profitable footing by an arrangement amongst the English and foreign makers. A heavy loss was sustained in consequence of the strike of the Durham miners. The raw material required for the company's operations for the ensuing year have been secured at greatly reduced prices, which should materially benefit the next year's accounts. The liabilities of the company have been greatly reduced during the present year.

Testing Chloroform.—The importance of using pure chloroform for anæsthetic purposes has been called attention to several times in these columns. Some light has been thrown on this matter lately by Mr. D. Brown, F.C.S., in a paper he read at the 29th British Pharmaceutical Conference. He is of the opinion that the B.P. tests are not sufficiently rigorous and suggests the following modifications:—(1) in the acid-test, at least 9 parts of chloroform should be shaken with 1 part of pure sulphuric acid continuously for twenty minutes, after which the acid is to be separated, diluted with 3 vols. of water, and any colour or foreign odour noted; (2) the author's fractional-distillation test should be adopted instead of the B.P. smell-test—viz., to distil until 15 per cent. of the original quantity is left, evaporate that at 80°—90° C., and then judge the odour; (3) that zinc iodide and starch be used to detect the first signs of decomposition; and (4) that the extent to which sulphuric acid decomposes chlorinated compounds be determined. Operating on various samples of commercial chloroform by these tests Mr. Brown found only one specimen gave a colour with zinc iodide and starch, while with the B.P. bad smell, by shaking with $H_2SO_4$; with Scotch chloroform, of nine samples, one was "slightly bad," one "bad," and a third "very bad," the rest "no bad smell"; English, four samples, one "slight," and three "very bad smell"; German, three samples, two "bad," and one "no bad smell."

Perfumery Manufacture in Bond.—The London Chamber of Commerce on behalf of its Perfumery Trade Section, recently made representations to the Board of Customs, reference to which was made in these columns, desiring that the hours of attendance of its office warehouses where the manufacture of perfumery is carried on in b should be extended to from 8 a.m. to 6 p.m. all the year round, an following is a copy of a letter which has been received in reply.

Custom House, London, Sept. 2nd, 1892

Sir,—With reference to your letter of the 25th ult., forwarding of a resolution passed by the Perfumery Trade Section of the Lo Chamber of Commerce in which it is requested that the hours du which the manufacture of perfumery, etc., in bond, may take place be extended to from 8 a.m. to 6 p.m. all the year round, I am dire by the Board of Customs to acquaint you that they have carefully sidered this application, but that they see no sufficient ground for ceding the extension of hours thus asked for.

I am to point out that concurrently with the recent Treasury deci favourable to the continuance of existing privileges in the matter of manufacture of perfumery in bond, to those who are desirous of e cising them, their Lordships sanctioned an arrangement whereby th who elect to manufacture out of bond may on exporting their prod get a drawback of the duty on spirit used, and that it is of course o to those firms in whose interests the present application is made to cept that alternative course and thus to avoid Customs supervision w attendant restrictions in the matter of prices.

I am, sir, your obedient servant,

(Signed) R. T. Prowse.

The Secretary London Chamber of Commerce.

## EXPORTS OF PETROLEUM FROM U.S.A.

The chief of the Bureau of Statistics, Mr. S. G. Brock, gives exports of petroleum and petroleum products from the Uni States during the month of July, 1892, and during the twelve mon ending July 31st, 1892. The total value of the shipments for July $2,999,984 as against $4,177,350 in 1891, and for the twelve mon ending July 31st, 1892, $23,140,115 as opposed to $25,478,530, 1891. The shipments were as follows:—

| | Gallons. |
|---|---|
| **CRUDE PETROLEUM.** | |
| Total for July, 1892 | 5,261,478 |
| Total for July, 1891 | 6,003,672 |
| Total for 12 months ending July 31st, 1892 | 49,254,132 |
| Total for 12 months ending July 31st, 1891 | 42,313,888 |
| **NAPHTHAS.** | |
| Total for July, 1892 | 905,291 |
| Total for July, 1891 | 827,999 |
| Total for 12 months ending July 31st, 1892 | 6,056,449 |
| Total for 12 months ending July 31st, 1891 | 4,664,011 |
| **ILLUMINATING.** | |
| Total for July, 1892 | 44,757,770 |
| Total for July, 1891 | 52,882,397 |
| Total for 12 months ending July 31st, 1892 | 315,210,479 |
| Total for 11 months ending July 31st, 1891 | 289,208,216 |
| **LUBRICATING.** | |
| Total for July, 1892 | 3,244,589 |
| Total for July, 1891 | 2,855,163 |
| Total for 12 months ending July 31st, 1892 | 19,441,057 |
| Total for 12 months ending July 31st, 1891 | 18,733,376 |
| **RESIDUUM.** | |
| Total for July, 1892 | 1,302 |
| Total for July, 1891 | 169,974 |
| Total for 12 months ending July 31st, 1892 | 235,326 |
| Total for 12 months ending July 31st, 1891 | 843,568 |

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

Benzol remains neglected, and the utmost values that can be reckon upon are 1s. 7d. for 90's, and 1s. 3d. for 50-90's. Anthracene kee flat, 30% A being 9½d., and 30% B 6½d. The correspondence th has appeared in one of our contemporaries should show tar distille and especially the Gas Light and Coke Company, of what importan it is for them to forget small jealousies and do business in a sensible wa at least for this one article, the price of which has, for the last 10 yea been regulated by a few German companies. It must not be forgott

world cannot do without alizarine, and that alizarine cannot be hout anthracene, of which there is a limited supply; and annot be made, as benzol is now produced. Only madder ubstitute anthracene. The farm growers of madder have now, something better to do than to return to the cultivation of a ch did not pay them sufficiently, even when anthracene was per unit on the old tests.

phate of ammonia market is not by any means so lifeless as ulators would have us believe; there is more enquiry, and a amount of business doing. Beckton is quoted at £9. 17s. 6d., ime price rules at Hull and Leith; London outside makes are ed at £9. 18s. 9d., to as high as £10., which is proof of iness.

## ERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

—Palm oil remains firm. Sales have not been very import- gh there has been business passing in Lagos at £22. and £20. 5s. The position of Olive is as hard as ever, with a nd. Neapolitan sorts have been done at from £38. to £40.; £37. to £37. 10s. There is not much offering. Linseed is y steady at 18s. 9d. to 20s. per cwt., in export casks. Cotton- verpool refined is quoted 18s. 6d., while American is firm at o 24s. per cwt., according to quality and quantity. Castor d seconds Calcutta is moving freely at the reduced figure, ble sales being reported at 2$\frac{5}{16}$d.; first pressure French still l. Tallow is at length moving, and in the direction of an n price. The tone of the market is firm, and the inquiry esin: In common there is a moderate business passing, at r cwt.; other grades unaltered. Spirits of turpentine is tter in price, which may now be quoted 21s. 3d. to 21s 6d

Petroleum steady; American 5d. to 6¼d., according to Russian refined 4⅜d. to 4½d. per gallon.

URS.—No alteration to report. Ochres: Oxfordshire, £10., medium, £12., best, £15.; Derbyshire, common, lium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. re, 50s. to 55s. White lead, red lead, and oxide of zinc d. Venetian red, £6. 10s. to £10. Cobalt: Prepared s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, est, £20.

## REPORT ON MANURE MATERIAL.

ontinues to be a moderate enquiry for phosphate material, ess resulting is not of large volume. For ammoniacal material t is very slow, without much alteration in prices.

75/80% Florida phosphate rock have been made at 8½d. c.i.f. to U.K., and there are buyers at 8¾d. per unit, c.i.f. Nearest value of Peace River rock is 7½d. per unit, and dried South Carolina, 7d. to 7¼d. per unit, in cargoes to rgoes of South Carolina land rock may be had at 7d. per do not hear of anything special in other descriptions of .

h is difficult to sell, and £3. 5s. per ton on 70%, nett Ham- s, is about the value. For cargoes of River Plate bones, for £4. 5s. per ton has been paid, and there would probably be yers at the price, but sellers meantime are holding for more ving no cargoes near at hand. Crushed Kurrachee bones to offer for shipment at £4. 2s. 6d., ex quay Liverpool. alue of Bombay bone meal, for shipment, is £4. 5s. per ton, Thames, Mersey, or Clyde, and there are buyers at the price. he value is £4. 2s. 6d. to £4. 12s. 6d, for inferior and fine spectively. Common grinding bones are still neglected, and d. is full value for good parcels, ex quay Liverpool. The soda market continues to drag on spot and for anything near Arrived cargoes have been sold at 8s. to 8s. 1½d. per cwt., to size and test, and 8s. 1½d. may be considered closing that position. For anything distant or not arrived much ces are demanded, sellers anticipating a recovery in values ly the Continental buyers come into the market again. On alue is 8s. 1½d. to 8s. 3d. per cwt., according to test and

special reported in other material, there being little dis- n the part of manure makers to increase their supplies in the

## MISCELLANEOUS CHEMICAL MARKET.

The strong demand for bleaching powder is still the principal feature in the alkali trade, and all supplies for near delivery are taken up. The quotations now for October, December, is £9. 17s. 6d. nett per ton, on rails makers' works. For 1893 deliveries prices are from £7. 5s. to £7. 10s per ton. Soda ash also continues in strong request, and all the makers are fully engaged with orders, prices being generally 1⅜d. per degree f.o.b. Liverpool for all grades of ammonia and Leblanc ash. Caustic soda is without any material change in position, and current prices are:—77%, £11. 15s. f.o.b. Tyne; f.o.b. Liverpool, 74%, £11. 5s.; 70%, £10. 5s.; 60%, £9. 2s. 6d.; cream, 60%, £8. 17s. 6d., 10 ton lots and upwards. Chlorate of potash is scarce for prompt delivery, and price nominally 7d per lb. Chlorate of soda 8d. per lb. For recovered sulphur £4. 15s. to £5. per ton are current quotations. Salt cake nominally 35s. White powdered arsenic has further advanced to £12. 10s. nett f.o.r. Garston, and is selling freely. In sulphate of copper there is no improvement, and price £15. to £15. 5s. per ton. Brown acetate of lime quiet at £5. 17s. 6d. to £6. per ton; grey, £10. 10s. to £10. 15s. Acetate of soda still scarce, and firm at £18. 10s. per ton c.i.f. White sugar of lead quiet and without change in value. The demand for carbolic acids is all for immediate delivery, and considerably lower prices are taken for October and forward deliveries Potash, caustic and carbonate, are firm in price, and fair amount of business doing. Oxalic acid still slow to move at 3d. per lb. Bichromates, soda and potash, 3¾d. and 4½d. per lb. respectively. Prussiate of potash slightly easier at 10d. to 10¼d. Sulphocyanides exceedingly quiet. Alum and sulphate of alumina are without any particular movement in price. Nitrate of soda still ranges from 8s. 3d. to 8s. 4½d. per cwt., with a firmer market for forward delivery.

## THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron firm. Scotch warrants closed at 41s. 8d. cash. Middlesbrough 40s. 6d. cash, and Hematite 50s. 6d. cash. Copper steady: Chili bars, G.O.B.'s and G.M.B.'s closed at £44. 3s. 9d. cash, and £44. 12s. 6d. to £45. three months. Tin steady: Straits closed at £92. 5s to £92. 10s. cash and £92. 10s. to £93. three months. Australian, £92. 12s. 6d. cash. English ingots, £95. to £95. 10s. Lead, steady. Spanish, £10. 2s. 6d.; English, £10. 5s. to £10. 7s. 6d. Silesian spelter: Ordinary, £20. Quicksilver in poor request. First hands, £6. 7s. 6d., second hands, £6. 6s. *Copper shares* dull: Cape, 1½ to 1⅝; Copiapo, 2 to 2⅛; Libiola, 3⅛ to 3¼; Mason and Barry, 2$\frac{7}{16}$ to 2$\frac{9}{16}$; Rio Tinto, 14⅝ to 14¾; Tharsis, 4¾ to 4½; Namaqua, ⅝ to ¾; Panulcillo, $\frac{5}{16}$ to $\frac{7}{16}$.

WOLVERHAMPTON, WEDNESDAY.—The pig iron market was again very strong to-day and further advances were noted. Sellers of Derbyshire sorts asked as much as 46s. 6d. to 47s. delivered for forge sorts, and 48s. 6d. to 49s. 3d. for foundry. Lincolns were 48s. 6d. to 50s., and hematite 60s. Northamptons 45s. to 45s. 6d. Manufactured iron quiet; bars, £6. to £8; sheets, £6. 15s. to £8.; Bessemer basic blooms, £4. 5s. upwards; Siemen's basic, £5. 5s Coal strong.

GLASGOW, WEDNESDAY.—Market quiet, with small business. Scotch done at 41s. 7½d. and 41s. 8d. cash; also at 41s. 9d. one month; closing with buyers at 41s. 7½d. cash and 41s. 9½d one month, sellers ask ½d. more. Middlesbrough closes with buyers at 40s. cash; sellers ask 40s. 6d. Hematite closes with buyers at 50s. 3d. cash; sellers ask 50s. 7d.

## TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are steady. The rush for bleach has somewhat subsided, though the product is still extremely scarce and for prompt and October delivery £10, per ton is the price. Makers are well sold forward.

Bleaching powder, softs, £10. per ton, and hards, £10. 15s. per ton; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £4. 17s. 6d. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton, in 10 ton lots; silicate of soda, 75° Tw. £3. per ton, 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per ton; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 7d. per lb. less 6%; pearl hardening, £3. 10s. per ton nett; pure white

sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta crystals, £19. per ton; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; hydrate of barium, £11. per ton.

South Durham salt unchanged at 9s. 6d. to 10s per ton f.o b. Tees.

Coals: Prices vary considerably with different collieries and on the whole there is a fair demand. Northumbrian best steam, 10s. 6d per ton, good demand; Bunker coal varies from 7s. 6d. to 10s. per ton, according to quality; gas coal, steady at 8s. to 8s. 6d. per ton, with an upward tendency. Coke firm, at 15s. to 16s. per ton, stronger enquiry.

## THE LIVERPOOL MINERAL MARKET.

The market continues firm. Manganese: Arrivals nil on account of cholera. Stocks further reduced and prices much higher. The stocks of best ore are now exhausted. Borate, 7d. per lb.; sulphate £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump): Prices are easier. Raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand), good demand; lump 20s., seconds 16s., and thirds 12s. French chalk: Arrivals continue large, with a brisk demand. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump, more to offer; nuts, 70s. to 80s.; whilst finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore freely offered; prices easy; Bilbao, Irish, and Cumberland easier. Santander and manganiferous quiet. Emerystone: Best quality inquired for. No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal firm. Chrome ore quieter. Antimony ore and metal quiet; prices better. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. 10s. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese steady, and prices are unchanged. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) steady; finest quality 22s. to 23s.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, Tuesday.

The crisis in the paraffin manufacture, intensified by the collapse of the Burntisland Oil Company, still continues unalleviated. Amongst the assets of the Burntisland Company are large storages of scale and wax held (like all the other companies) for the American Convention prices. The liquidator, of course, not being bound in any way to the Convention, would sell at the lower prices offered by the consumers, with the result almost assuredly of breaking up the Scots-American agreement, and precipitating a disastrous drop of price all round. The other companies met by delegates, last week, to consider whether they could take over the Burntisland scale and wax bodily, but no decision was come to, the meeting adjourning till the 14th (to-morrow). The conjuncture is an exceedingly grave one for the makers, for it is a matter almost of life and death that present fixed values should be upheld, while the alternative of adding so largely to stocks, when their own warehouses are positively glutted, is unpalatable in the extreme. Of the other paraffins the best offered is burning oil whose deliveries are getting better, but all the others are unchanged.

At the moment, sulphate of ammonia is firmer, fetching for spot £9. 17s. 6d. to £9. 18s. 9d. or £10., but this is taken as due to passing influences only. Forward quotation has been affected also, and £10. 2s. 6d. spoken of.

Bleach continues scarce and dear, with the Union figure at £10., but middle hands are shading at £9. 10s. Chlorate also has risen. Other chemicals featureless.

Chief prices current are:—Soda crystals, £2. 17s. 6d., nett Tyne; alum in lump, £5. 10s., nett Glasgow; soda ash, 1⅜d., less 2½%, Tyne; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; refined alkali, 1⅝d., less 2½% Tyne; bleaching powder, £9. 10s. nett Tyne; saltcake, 36s. 6d.; borax, English refined, £29., and boracic acid, £37. 10s. less 2½% Gl
bichromate of potash, 4½d. nett, for Scotch and English delive
export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., f
Scotch and English deliveries (for export 3½d. nett f.o.b. Gl
chlorate of potash, 7d., less 5% Liverpool; nitrate of soda, 8s
8s. 6d.; sulphate of ammonia, £9. 17s. 6d. to £9. 18s. 9d. f.o.b
salammoniac, first and second white, £35. and £33., less
any port; sulphate of copper, £14. 10s. less 5% Liv
paraffin scale (hard), 2$\frac{15}{16}$d., and soft 2$\frac{15}{16}$d. to 3d. per lb.;
wax, 120°, semi-refined, 3⅝d. to 4d.; paraffin spirit (naphth
a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. accord
kind, at works, for Scotch buyers (English sales from ½d. to 1d.
ditto (lubricating), 865°, £3. 5s. to £3. 15s., 885°, £4. 10s.
and 890/895°, £5. to £7. Week's imports of raw sugar at Gl
were 29,465 bags.

# New Companies.

Adolphe Crosbie, Limited.—This company was registered on the
with a capital of £15,000., in £5. shares, to adopt and carry into effect
ment dated September 1, 1892, made between Mr. Adolphe Crosbie, of
hampton, chemical merchant and manufacturer, of the one part, and M
Henry Ingram (trustee for the company), of the other part, and to carr
business heretofore carried on by the said Adolphe Crosbie, by the Re
Company, and by Mr. Wm. Tuckey, lately trading as the Cheshire
Company, at Wolverhampton and elsewhere; and to carry on the businesses
facturers and merchants of acids, etc., and of paints, varnishes, oils, etc.
mechanical engineers, machinists, galvanizers, japanners, enammellers,
platers, etc. The subscribers are:—

S

Adolphe Crosbie, Worcester Lodge, Pennfields, Wolverhampto
chemical manufacturer .....
H. Evans, Green House, Tettenhall, bank manager .....
E. T. Cresswell, Wolverhampton, solicitor .....
A. M Manby, Wolverhampton, solicitor .....
R. Williams, Penkridge, bank manager .....
Alfred Whitehouse, Wolverhampton, solicitor .....
W. H. Ingram, Dibdale Farm, Dudley, clerk .....

The Ashton Paint and Varnish Co., Limited.—This company
tered on the 2nd inst., with a capital of £3 000., in £1. shares, to purcha
rent, or otherwise acquire and take over as a going concern the business
lead, paint, colour, and varnish manufacturers and merchants, together
goodwill, premises, and stock-in-trade of the same, carried on by the Ashto
Varnish Co., at 273, Stamford-street, Ashton-under Lyne; and the var
colour works carried on by Messrs. Greenwood Brothers, Kilshaw-lane, Ho
near Manchester; and, finally, to carry on the business of white lead, pain
and varnish manufacturers, chemical manufacturers, or merchants, tar distil

The Distillers' Chemists' Co., Limited.—Registered on the 6th inst
capital of £3,000., in £1. shares, to undertake and carry on the business ge
distillers' chemists, distillers, distillers of essential oils, manufacturers of
colouring, finings, grey salts, and all articles and chemicals used or employ
rectification, flavouring, sweetening, colouring, and compounding of wine
liqueurs, cider, etc., and to carry on, either wholesale or retail, the trade
nesses of chemists and druggists, drysalters, druggists' sundriesmen, sau
facturers, etc.

F. Rosher and Co. (Sittingbourne), Limited.—This company was
on the 2nd inst., with a capital of £20,000., in £5. shares, to take over the
of the firm of Messrs. F. Rosher & Co., of Crown Quay Cement Works
bourne, Kent, upon the terms defined by an agreement dated August 26,
made between Mr. Frederick H. Rosher, of the one part, and Mr. T. E.
of the other part, and to carry on business as manufacturers and dealers i
and other building materials, etc. The subscribers are:—

F. E. Rosher, Sittingbourne, cement manufacturer .....
E. F. Seymour, Sidcup, commercial clerk .....
L. H. P. Powell, Church End, Finchley, insurance agent .....
J. H. Rosher, Sittingbourne, cement manufacturer .....
T. H. Harrison, Hampstead, commercial clerk .....
A. Howlett, 14, Bedford-street, Covent Garden, solicitor .....
F. Barnes, 52, Gracechurch-street, E.C., chartered accountant .....

The West Riding Candle Co., Limited.—This company was regi
the 6th inst, with a capital of £10,000., in £1. shares, to carry on the
of candle manufacturers in all its branches, and in particular to purchase
wise acquire the businesses carried on by the West Riding Candle Co., a
ham, and the Sheffield Candle Co., at Heeley Mills, Sheffield, together
plant, fixtures, etc., and to carry on the business of manufacturers of, and
all kind of candles and soaps, and also the business of box makers, cas
printers, paper makers, chemists, tallow chandlers. The subscribers are

T. Wigfield, Rotherham, candle manufacturer .....
W. Wigfield, Rotherham, candle manufacturer .....
G. H. Lodge, Rotherham, dental surgeon .....
A. T. Cocking, Rotherham, mining engineer .....
Caroline Wigfield, 3, Collegiate Terrace, Rotherham .....
Eliza Swain, Moorgate, Rotherham .....
Richard Sands, 5, Baker-street, Nottingham, chartered accountant ..

# The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

## APPLICATIONS FOR LETTERS PATENT.

**Extracting Metals by Electricity.** A. F. W. Kreinsen. 15,477. August 29.
**Treating Animal Fat.** W. Shepperson. 15,482. August 29.
**Cleaning and Softening Textile Fabrics.** A. Monforts. 15,486. August 29.
**Pyrometer.** H. P. J. Nigretti and M. W. Zambra. 15,489. August 29.
**Coating Articles with Zinc.** E. H. L. Sturzel. 15,491. August 29.
**Lubricating by Electricity.** H. H. Lake. 15,492. August 29.
**Production of Cyanides by Employment of Hydrocarbon, Ammonia Gases, and Free Nitrogen.** H. J. Haddan. 15,513. August 29.
**Evaporating and Drying Apparatus.** F. C. Robertson. 15,521. August 30.
**Smoke Consuming Furnace.** T. Langer. 15,542. August 30.
**Artificial Caoutchouc.** A. F. St. George. 15,544. August 30.
**Separating Gluten from Flour.** G. J. Epstein. 15,571. August 30.
**Extracting Metals from their Ores.** J. W. Chenhall. 15,584. August 30.
**Coating Terne Plates.** A. J. Maskrey. 15,592. August 31.
**Sewer Ventilating Shafts.** J. Cornelius. 15,598. August 31.
**Coire Fibre and Rubber Composition.** J. McDonnell. 15,614. August 31.
**Animal Glue.** E. Brand. 15,630. August 31.
**New Azo-Colouring Matters.** H. E. Newton. 15,636. August 31.
**Electrolytic Decomposition of Alkaline Chlorides.** J. Stoerk. 15,649. August 31.
**Sulpho-Cyanides.** E. A. Deiss. 15,653. August 31.
**Purifying and Maturing Spirits.** C. A. Sahlström and A. B. Cunningham. 15,656. August 31.
**Cleansing Compound.** W. C. Latham. 15,696. September 1.
**Reduction of Antimony and Purification of the Metal.** J. B. Alzuganay. 15,713. September 1.
**Paper Pulp from Peat.** A. Brin. 15,720. September 1.
**Filter Presses.** T. A Bullough. 15,730. September 2.
**Fuel Briquettes.** T. W. Lee. 15,748. September 2.
**Slack Consuming Furnaces.** C. Wegener and P. Baumert. 15,786. Sep. 2.
**Azo-Colouring Matters.** C. D. Abel. 15,789. September 2.
**Carburetting Gas.** W. Hawkins, T. Hawkins, H. Fuller, and W. H. Fuller. 15,802. September 2.
**Manufacture of Copper Sulphate.** T. D. Owen. 15,809. September 3.

# Gazette Notices.

## PARTNERSHIPS DISSOLVED.

W. HALZAPFEL, M. HALZAPFEL, AND A. C. A. HALZAPEL, under the style of M. Halzapfel and Co., Newcastle-upon-Tyne, Fenchurch-street, City, and Sevastopol, composition and varnish manufacturers and dealers.

ELLIS AND PARKER, Cleckheaton, Yorkshire, manufacturing chemists.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending September 3rd.*

**Acetate of Lime—**
U. States, 342 pkgs. H. Wallace & Co.

**Acetic Acid—**
Holland, 108 pkgs. A. & M. Zimmermann
" 70 Carey & Sons

**Alkali—**
France, 210 c. P. Hecker & Co.
" 200 Arnati & Harrison
Belgium, 500 Knight, Hill & Co.

**Alum—**
Holland, 136 pkgs. Ohlenschlager Bros.

**Antimony—**
Italy, 10 t. H. R. Merton & Co.
" 1 Gellatly, Hankey & Co.
France, 1 B. & F. Wf. Co., Ltd.
" 20 J. Bamber
Japan, 2 J. Batt & Co.

**Asbestos—**
Italy, £400 Middleton Wf. Co.
" £120 M. Angelo & Co.

**Barium Chloride—**
Germany, 25 pkgs. Petri Bros.

**Barytes—**
Germany, 28 cks. O'Hara & Hoare
" 19 S. H. Willoughby
" 90 W. Harrison & Co.
Belgium, 22 S. H. Willoughby
Holland, 42 W. Harrison & Co.
Belgium, 21 "

**Barytes Carbonate—**
Germany, 70 pkgs. Cotton Powder Co., Ld.

**Boracic Acid—**
Germany, 1 pkge. L. & J. D. Jt. Co.

**Bromide of Iron—**
Germany, 5 pkgs. A. & M. Zimmermann

**Caoutchouc—**
Brazil, 187 c. Prop. Bull Wf.
U. States, 15 Stiebel Bros.
France, 21 L. & I. D. Jt. Co.
" 33 Flageollet & Co.
" 22 Anderson, Weber & Smith
" 106 Wallace Bros.
" 51 Clarke & Smith
" 2 Hernu, Peron & Co.
" 240 Carey & Sons.
" 56 F. A. Hodgkinson & Co.

**Castor Oil—**
Italy, 33 cs. Gellatly, Hankey & Co.
Belgium, 50 brls. Fuerst Bros.
Italy, 13 cs. L. & N. W. Rly.
" 25 Bot. & Nich.'s Wvs. Co.

**Caustic Potash—**
France, 21 drs. Beresford & Co.
" 21 pkgs. Spies Bros. & Co.
" 20 c. Petri Bros.

**Chemicals** *(otherwise undescribed)*
Germany, 66 pkgs. A. & M. Zimmermann
" 5 T. H. Lee
" 3 C. Atkins & Nisbet
" £6 L. & I. D. Jt. Co.

**Cream of Tartar—**
Spain, 5 pkgs. C. Christopherson & Co.
" 5 W. C. Bacon & Co.
France, 13 "
" 5 M. Ashby, Ld.
Holland, 3 Middleton & Co.
Italy, 3 W. C. Bacon & Co.
France, 5 B. & F. Wf. Co., Ltd.
Italy, 1 Italo-Brit. S. N. Co.
Spain, 8 Kemball, Bishop & Co.

**Dyestuffs—**
**Aniline**
Melbourne, 9 pkgs. F. A. Hodgkinson & Co.
**Cochineal**
Canaries, 10 pkgs. Marshall & French
**Divi Divi**
E. Indies, 67 pkgs. Walker, Munsie & Co.
**Extracts**
U. States, 54 pkgs. L. & I. D. Jt. Co.
" 30 J. Graves
Denmark, 4 Bailey & Leetham
" 4 R. J. Fullwood & Co.
U. States, 36 Beresford & Co.
Germany, 8 T. H. Lee
**Gambier**
Singapore, 1,343 pkgs. L. & I. D. Jt. Co.
" 381 Adamson, Gilfillan & Co.
" 449 Beresford & Co.
" 174 P. & S. Evans & Co.
" 227 R. & J. Henderson
" 1,304 E. Boustead & Co.
Japan, 419 W. H. Cole & Co.
**Indigo**
E. Indies, 11 chts. W. Brandts, Son & Co.
" 12 Benecke, Souchay & Co.
" 15 F. Huth & Co.
" 63 Wallace Bros.
" 9 Parsons & Keith
" 235 L. & I. D. Jt. Co.
" 29 Arbuthnot, Latham & Co.
" 166 R. Von Glehn & Sons
**Myrabolams**
E. Indies, 1,210 pkgs. Clarke & Smith
**Sumac**
Italy, 300 pkgs. Sollas & Sons
" 55 J. Greig
" 500 J. Kitchin, Ld.
" 100 W. Shelcott
**Tanners' Bark**
Adelaide, 130 t. Beresford & Co.
**Valonia**
A. Turkey, 52 t. A. & W. Nesbitt
" 75 Boutcher, Mortimore & Co.

**Dyestuffs** *(otherwise undescribed)*
A. Turkey, 51 pkgs. Ross & Deering

**Farina—**
N. Russia, 150 pkgs. R. Warner & Co., Ltd.
Holland, 20 Prop. Chambln.'s Wf.
" 50 J. Knill & Co.

**French Chalk—**
Italy, £50 W. Harrison & Co.

**Glucose—**
U. S., 15 pkgs. 91 c. Fellows, Morton & Co.
" 75 413 Prop. Chmbln.'s Wf.
" 50 275 H. Johnson & Sons
" 100 570 Pillow, Jones & Co
" 75 420 Soundy & Son
" 245 245 J. Barber & Co.
" 100 603 Page, Son & East
France, 150 150 Barrett, Tagant & Co.
" 200 200 J. Barber & Co.
" 200 200 L. Norman & Co.
U. S., 500 3,000 R. G. Hall & Co.
" 4,215 5,290 Union L. Co., Ld.
" 80 80 Prop. Sun Wf.

**Guano—**
Holland, 1 t. J. Owen

**Iron Oxide—**
France, 1 pkge. Hernu, Peron & Co.

**Iron Perchloride—**
Holland, 1 pkge. R. Morrison & Co.

**Lead Acetate—**
France, 10 pkgs. F. Smith
Holland, 8 B. & F. Whf. Co., Ld.

**Methyl Alcohol—**
Germany, 10 cks. Elkan & Co.

**Mica—**
U. S., 45 pkgs.. W. M. Smith & Sons

**Muriatic Acid—**
Holland, 2 pkgs. Elkan & Co.
" 2 Soc. Mar. Belge

**Ochre—**
France, 29 cks. W. Harrison & Co.
Holland, 8 pkgs. 5 cs. Phillipps & Graves

**Oxide of Manganese—**
Holland, 3 pkgs. Magee, Taylor & Co.

**Painters' Colours—**
Holland, 4 pkgs. F. Bartlett
Germany, 8 T. H. Lee
France, 24 Flageollet & Co.
Germany, 5 L. & I. D. Jt. Co.
" 4 cks. Phillips & Graves
Italy, 6 Gellatly, Hankey & Co.
France, 20 L. & I. D. Jt. Co.
China, 15 Upas Co.
U. S., 3 Knight & Morris
Belgium, 8 T. Palmer
U. S., 4 Beck & Pollitzer
Germany, 10 G. Steinhoff
Holland, 15 Blundell, Spence & Co.
" 64 Phillipps & Graves
" 7 T. Palmer
France, 8 G. J. Thompson
Austria, 17 M. D. Co.

**Paraffin Wax—**
U. S., 578 brls. J. H. Usmar & Co.
" 288 pkgs. H. Hill & Sons

**Phosphate Rock—**
Belgium, 330 t. Odams Chemical Manure Co.
Holland, 125 Anglo Cntl. Guano Wks.
U. S., 3,200 Wyllie and Gordon

**Pitch—**
Holland, 100 cks. Williams, Torrey & Co.
N. Russia, 500 Linck, Moeller & Co.

**Plumbago—**
Germany, 22 cks. Brown & Elmslie

**Potash—**
France, 210 c. F.W. Berk & Co., Ld.
" 140 Petri Bros.
Canada, 173 S. Ward & Co.
Germany, 10 pkgs. L. & I. D. Jt. Co.

**Potash Salts—**
Holland, 5 pkgs. R. Morrison & Co.

**Potassium Carbonate—**
France, 10 pkgs. Spies Bros. & Co.
" 120 c. N. Clement.

**Potassium Cyanide**—
Holland, 3 pkgs. R. Morrison & Co.
**Potassium Muriate**—
Holland, 35 pkgs. H. Johnson & Sons
**Potassium Oxymuriate**—
Belgium, 50 pkgs. G. Boor & Co.
**Potassium Sulphate**—
Germany, 11 pkgs. Prop. Dowgate Dk.
**Pyrites**—
Spain, 2,992 c. C. Tennant, Sons & Co.
Norway, 580 t. 580 c. F. W. Berk & Co.
Italy, 10 Italo-Brit. S. N. Co
**Rosin**—
U. States, 3,006 brls. H. Hill & Son.
**Saltpetre**—
E. Indies, 2,651 bgs. Ralli Bros.
" 788 L. & I. D. Jt. Co.
Germany, 70 cks. T. Merry & Son
" 2 Craven & Co.
E. Indies, 154 bgs. Lucas & Spencer's Wf.
" 676 C. Wimble & Co.
**Sodium Acetate**—
France, 9 pkgs. S. F. Waters & Co.
" 28 H. Wallace & Co.
**Sodium Hyposulphite**—
Holland, 14 pkgs. Beresford & Co.
**Stearine**—
France, 10 bgs. B. & F. Wf. Co., Ltd.
" 10 Marim, Harriss & Co.
" 19 Beresford & Co.
**Sulphur**—
Italy, 115 t. G. Boor & Co.
France, 3 McDougall & Bouthron
Italy, 5 H. W. Ison
" 100 Johnson & Hooper
" 5 J. Kitchin, Ltd.
" 5 A. F. White & Co.
**Tallow**—
S. Russia, 1 ck. Redfern, Alexander & Co.
Belgium, 11 G. Haller & Co.
" 22 Sawer, Mead & Co.
U. States, 26 R Tucker & Co.
Sydney, 136 Austn. Meat Co.
France, 6 Mory & Co.
N. Zealand, 12 N. Z. L. & M. A Co.
U. States, 3 W. W Young
Belgium, 19 63 bgs. H. Hill & Sons
E. Indies, 1 Flack, Chandler & Co.
Adelaide, 95 Anning & Cobb
**Tar**—
Germany, 115 brls. W. Beard & Son
N. Russia, 2,065 Linck, Moeller & Co.
**Tartaric Acid**—
Holland, 10 pkgs. Middleton & Co.
Spain, 7 L. & I. D. Jt Co.
Holland, 6 B. &. N. Wf. Co., Ltd.
**Turpentine**—
Savannah, 3,293 cks. Nickoll & Knight
**Ultramarine**—
Holland, 4 cks. G. Rahn & Co.
" 5 cs. Magee, Taylor & Co.
Belgium, 5 pkgs. Leach & Co.
" 5 W. Harrison & Co.
**Varnish**—
U. States, 25 pkgs. Beck & Pollitzer
" 20 Pinchin, Johnson & Co.
**White Lead**—
Holland, 89 cks. Phillipps & Graves
" 37 A. & M. Zimmermann
Germany, 30 Petri Bros.
" 30 Elkan & Co.
" 20 W. Croft
" 25 N. J. Fenner & Co.
" 120 H. Lambert
France, 23 brls. Union Lighterage Co., Ltd.
**Zinc Oxide**—
Germany, 50 brls. M. Ashby, Ltd.
Holland, 125 "

## LIVERPOOL.

*Week ending September 1st.*

**Acetate of Lime**—
New York, 1,638 bgs.
**Acetic Acid**—
Rotterdam, 4 cks.
**Barytes**—
Antwerp, 12 cks.
Rotterdam, 23
**Bone Ash**—
Rio Grande, 209 t. A. Tesdorpf & Co.
**Castor Oil**—
Calcutta, 1,000 cs. E. D. Sassoon & Co.
**Chemicals** *(otherwise undescribed)*
Rotterdam, 4 cks.
**Colours**—
Havre, 18 cs. 52 pkgs.
Rotterdam, 9 10 cks.
**Cream of Tartar**—
Rotterdam, 3 cks.
**Dyestuffs**—
**Algorabilla**
Valparaiso, 320 bgs. Balfour, Williamson & Co.
Havre, 500
**Annatto**
Bordeaux, 31 cks.
**Argols**
Patras, 35 cs. M.D. Frangopolo & Co.
Oporto, 33 cks. German Bank
" 22 German Bank of London
**Extracts**
Fiume, 300 brls. Boutcher, Bacon & Co.
New York, 5
Bordeaux, 300 cks.
Halifax, N.S., 200 Boutcher, Bacon & Co.
Philadelphia, 100 bxs.
**Fustic**
Colon, 431 pcs. A. Dobell & Co.
**Saffron**
Valencia, 2 cs.
**Valonia**
Samsoun, 313 bgs.
Smyrna, 210 26 t.
**Glucose**—
New York, 450 brls.
Baltimore, 50
Rotterdam, 20 kgs.
**Glycerine**—
Rotterdam, 18 cs. 13 tins.
**Guano**—
B. Ayres, 30 bgs.
**Horn Piths**—
Rio Grande, 161,000 A. Tesdorpf & Co.
**Iodine**—
Valparaiso, 27 brls. A. Gibbs, Sons & Co.
" 21
**Manganese**—
Rotterdam, 13 cks.
**Mineral White**—
Trieste, 150 brls. V. Pazze
**Naphtha**—
New York, 4,367 brls. Meade, King & Co.
**Ochre**—
New York, 169 brls.
**Paint**—
Boston, 15 cs. Frazer & Co.
" 5 Bahr, Behrend & Ross
Philadelphia, 15 brls. Anglo-Am. Oil Co., Ld.
**Paraffin Wax**—
New York, 120 brls.
**Plumbago**—
Antwerp, 20 bgs.
**Potassium Carbonate**—
Hamburg, 2 cks.
**Pyrites**—
Huelva, 6,845 t. Matheson & Co.
**Rosin**—
Wilmington, N.C, 4,666 brls.
New York, 500
**Saltpetre**—
Calcutta, 572 bgs.
**Soap**—
New York, 2 cs.
Constantinople, 3 pkgs. Joannides Brs.
Boston, 1 cs.
Philadelphia, 5 pkgs.
**Soapstone**—
Bordeaux, 500 bgs. G. G. Blackwell
**Stearine**—
In transit, 10 cs.
**Sulphide of Silver**—
Colon, 3 cs. Sanchez & Gaffron
**Tallow**—
Philadelphia, 25 cks. 25 hds.
B. Ayres, 60 pps.
Boston, 25 hds.
**Tar**—
Archangel, 1,750 brls. J. H. Hind & Co
**Tartar**—
Bordeaux, 11 cks.
**Tartaric Acid**—
Rotterdam, 27 cks.
**Turpentine**—
Wilmington, N.C., 417 brls.
**Ultramarine**—
Hamburg, 20 cks.
Rotterdam, 10 20 cs.
**Verdigris**—
Bordeaux, 7 cks.
**White Lead**—
Antwerp, 7 cks.
Rotterdam, 38
**Zinc Oxide**—
Antwerp, 75 brls.

## HULL.

*Week ending September 3rd.*

**Acetic Acid**—
Rotterdam, 2 cbys. G. Lawson & Sons
**Alkali**—
Bremen, 2 cs. Veltmann & Co.
**Alum**—
Rotterdam, 99 cks.
**Antimony**—
Hamburg, 5 cs. Wilson, Sons & Co., Ltd.
**Arsenic**—
Hamburg, 20 cks. Wilson, Sons & Co., Ltd.
**Asbestos**—
Boston, 4 cs. Wilson, Sons & Co., Ltd.
Bremen, 1 2 bls. Veltmann & Co.
**Barytes**—
Rotterdam, 21 cks. J. W. Davies & Son
Antwerp, 23 Bailey & Leetham
Hamburg, 6 bgs. G. Lawson & Son
Bremen, 24 cks. Veltmann & Co.
" 46 Tudor & Sons
" 22 Stephenson & Gebhard
" 103 bgs.
Antwerp, 43 cks.
**Caoutchouc**—
Hamburg, 13 c. C. M. Lofthouse & Co.
**Castor Oil**—
Leghorn, 141 pks. Wilson, Sons, & Co., Ld.
Genoa, 20 cs. " "
**Chemicals** *(otherwise undescribed)*
Rotterdam, 5 cs. W. & C. L. Ringrose
Bremen, 1 kg. 1 cs. Veltmann & Co.
" 1 Sissons, Bros. & Co.
Hamburg, 4 cks. Wilson, Sons. & Co., Ld.
Antwerp, 37 pks. " "
**Colours**—
Rotterdam, 4 cks. Tudor & Sons
" 6 cs. 7 cks. Hutchinson & Son
" 3 5 pks. W. & C. L. Ringrose
Hamburg, 4 Sissons, Bros. & Co.
Rotterdam, 1 ck. 12 G. Lawson & Son
" 4 Todd & Son
Ghent, 23
Antwerp, 1 Bailey & Leetham
Amsterdam, 1 W. & C. L. Ringrose
Flushing, 24 12 cs. 158 pks. Zeeland S. S. Co.
Danzig, 5 Wilson, Sons, & Co., Ld.
" 26
Hamburg, 1 cs.
Antwerp, 52 cks.
**Copper Sulphate**—
Dunkirk, 76 cs. Wilson, Sons & Co., Ltd.
**Cryolite**—
Copenhagen, 15 cks. Wilson, Sons & Co., Ltd.
**Dextrine**—
Rotterdam, 1 bl. G. Lawson & Sons
**Dyestuffs**—
**Alizarine**
Flushing, 22 cks. Zeeland S
Rotterdam, 3 W. & C. L.
**Indigo**
Genoa, 26 pks. Wilson
**Madder**
Rotterdam, 1 ck. W. & C.
Amsterdam, 5 Wilson, C
Rotterdam, 1 "
**Valonia**
Smyrna, 490 bgs.
**Farina**—
Ghent, 94 cs. Wilson, C
Stettin, 100 bgs. "
Danzig, 223 "
Hamburg, 10 "
" 50
**Glucose**—
Rotterdam, 50 bgs. Hutch
New York, 20 brls. Wilson,
" 120
**Glycerine**—
Rotterdam, 5 balns.
**Lime**—
New York, 808 bgs. Wilson,
**Ochre**—
Marseilles, 100 cks. Wilson,
" 34
**Paint**—
Boston, 15 cs.
**Phosphate**—
St. Valery, 2,460 c.
Ghent, 102 bgs.
**Pyrites**—
Huelva, 547 t. J. Dalton
**Saltpetre**—
Hamburg, 4 cks. G. La
**Soap**—
New York, 19 pks. Wilson, Sons
Marseilles, 15 cs. " "
**Sodium Nitrate**—
Hamburg, 23 bgs. Wilson, C
**Size**—
Hamburg, 9 cks. C. M. Lo
Rotterdam, 7 cs. W. & C. L. Ri
**Tallow**—
New York, 900 brls. Wilson, Co.
Antwerp, 6 pks. "
**Tallow Oil**—
Boston, 189 trcs. Wilson, S Co
**Tar**—
Stockholm, 10 brls. Wilson, Sons,
**Tartaric Acid**—
Rotterdam, 4 cks.
" 9 W. & C. L. Ri
**Ultramarine**—
Bremen, 8 cks.
**Varnish**—
Antwerp, 3 cs. Wilson, S Co
**White Lead**—
Antwerp, 23 cks. Bailey & Le
**Zinc Oxide**—
Hamburg, 13 cks. G. Lawson &
Rotterdam, 25 " "

## GLASGOW.

*Week ending September 8t*

**Acetate of Lime**—
New York, 429 bgs.
**Alkali**—
Rotterdam, 2 cks. J. Rankine
**Asbestos**—
Lisbon, 2 cks.
**Barytes**—
Rotterdam, 92 cks.
**Barytes Sulphate**—
Antwerp, 420 bgs.

**Cottonseed Oil—**
New York, 100 brls.
**Dyestuffs—**
**Extracts**
Antwerp, 5 cks.
**Turmeric**
Calcutta, 300 bgs.
**Glucose—**
New York, 96 brls.
**Lead Acetate—**
Antwerp, 11 cks. Robertson, M'Intosh & Co.
**Ochre—**
Rouen, 32 cks.
**Pitch—**
Archangel, 300 brls. Stewart, Brown & Co.
**Potash—**
Quebec, 20 brls.
**Resin—**
New York, 88 brls.
**Soda—**
New York, 10 brls.
**Sodium Acetate—**
Rouen, 8 cks.
**Stearine—**
Antwerp, 13 bgs.
**Tallow—**
New York, 50 hhds.
**Tar—**
Archangel, 1,380 brls. Stewart, Brown & Co.
New York, 100
**Tartar—**
Oporto, 8 cks.
**Tartaric Acid—**
Rotterdam, 3 cks. J. Rankine & Son
**Zinc Oxide—**
Rotterdam, 10 cks. J. Rankine & Son
Antwerp, 10
**Zinc White—**
Rotterdam, 200 cks. J. Rankine & Son

## TYNE.

*Week ending September 3rd.*

**Alum Earth—**
Hamburg, 18 cks. Tyne S. S. Co.
**Asbestos—**
Rotterdam, 1 cs. Tyne S. S. Co.
**Barytes—**
Rotterdam, 115 cks. Tyne S. S. Co.
Antwerp, 60 bgs. ,,
**Chemicals** *(otherwise undescribed)*
Rotterdam, 1 cs. Tyne S. S. Co.
**Salt—**
Rotterdam, 90 t. Tyne S. S. Co.
**Tar—**
Archangel, 1,257 brls.
**Ultramarine—**
Rotterdam, 5 cs. Tyne S. S. Co.
**Zinc Oxide—**
Antwerp, 10 brls. Tyne S. S. Co.

## GOOLE.

*Week ending August 24th.*

**Alizarine—**
Rotterdam, 7 pkgs.
**Alum—**
Rotterdam, 69 cks.
**Antimony—**
Boulogne, 2 cks.
**Dyestuffs** *(otherwise undescribed)*
Boulogne, 38 cks. 11 cs. 7 pkgs.
**Farina—**
Rotterdam, 100 bgs.
**Fustic—**
Corinto, 845 t.
**Glucose—**
Delfszyhl, 4 cks.
**Glycerine—**
Hamburg, 3 cs. 4 dms.
**Phosphate—**
Ghent, 816 bgs.
**Potash—**
Hamburg, 14 cks.
Calais, 21 dms.
Dunkirk, 53
**Sodium Silicate—**
Rotterdam, 10 cks.
**Waste Salt—**
Hamburg, 538 t.
**Zinc Oxide—**
Rotterdam, 3 cks.

## GRIMSBY.

*Week ending August 27th.*

**Chemicals** *(otherwise undescribed)*
Antwerp, 20 cks.
**Dyestuffs** *(otherwise undescribed)*
Dieppe, 10 cks.
**Farina—**
Hamburg, 85 pkgs.
**Pitch—**
Dieppe, 5 cks.
**Size—**
Antwerp, 9 cks.
**Tartar—**
Dieppe, 3 cs.
**Zinc Ashes—**
Antwerp, 48 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending September 7th.*

**Acetic Acid—**
Montreal, 10 bxs. £17
Melbourne, 5 c. 10
**Acids—**
Natal, 10 cs. £26
**Aluminous Cake—**
Rotterdam, 20 t. £80
Calcutta, 27 12 c. £90
**Ammonia—**
Natal, 12 drs. £22
**Ammonium Carbonate—**
Bordeaux, 10 cks. £33
Sydney, 12 c. 19
Melbourne, 5 7
Bordeaux, 1 t. 8 c. 40
**Ammonium Chloride—**
Stettin, 3 t. 5 c. £107
Paris, 2 66
Melbourne, 8 14
Hamburg, 36 cks. 187
Samoan, 2 t. 65
**Ammonium Sulphate—**
Hamburg, 20 t. £200
Rouen, 11 5 c. £120
**Arsenic—**
Tasaru, 1 t. £15
**Borax—**
Hamburg, 2 cks. £22
Melbourne, 10 c. 16
**Carbolic Acid—**
Dantzic, 1 t. 4 c. £45
**Carbonic Acid Gas—**
Bordeaux, 32 tbs. £8
**Caustic Soda—**
Algoa Bay, 1 t. 16 c. £49
Dunedin, 5 5 56
Natal, 10 7
Lyttleton, 10 3 108
Cape Town, 15 24
Gibraltar, 6 20
**Chemicals** *(otherwise undescribed)*
Wellington, 10 cs. 31 pkgs. £70
Gothenburg, 20 cks. 25
Adelaide, 5 cs. 53
Auckland, 100 djhs. 12 44
Oporto, 9 kgs. 29
Algoa Bay, 16 pkgs. 114
Natal, 5 31
Bombay, 18 cs. 55
**Chromic Salts—**
Bordeaux, 5 pkgs. £6
**Citric Acid—**
Bombay, 2 c. £19
New York, 15 115
Gutujeffsky, 20 kgs. 154
Barcelona, 1 t. 156
Bremerhaven, 1 170
Hamburg, 1 10 c. 10 kgs. 2 cks. 384
Lisbon, 5 cks. 41
Antwerp, 3 brls. 4 kgs. 79
Rotterdam, 3 23
Amsterdam, 1 8
Madras, 1 c. 8
B. Ayres, 1 t. 5 204
**Coal Products—**
**Alizarine**
Bombay, 66 cks. £417
**Aniline Oil**
Rotterdam, 12 drs. £400
**Anthracene**
Dusseldorf, 20 cks. £998
Rotterdam, 187 607
**Benzol**
Terneuzen, 16 dms. £156
Rotterdam, 20 cks. 129
**Carbolic Acid**
Barcelona, 20 cks. £55
Rotterdam, 40 180
**Creosote**
Dieppe, 587½ brls. £123
Cette, 1,956 866
**Creosote Oil**
Gothenburg, 20 rnlts £18
**Dyestuffs**
**Tar**
Melbourne, 8 cks. £53
**Naphtha**
Sydney, 13 cs. £17
Calais, 25 runs. 79
**Naphthalene**
Hamburg, 12 cks. £22
**Pitch**
Naples, 210 cks. £83
Palermo, 15 7
Gothenburg, 50 28
Antwerp, 643 tns. 879
**Tar**
Gothenburg, 80 rnlts. £56
Trinidad, 10 brls. 10
Stettin, 1,035 419
**Toluol**
Calais, 50 rns. £170
**Cream of Tartar—**
Wanganui, 7 cs. £30
Sydney, 1 c. 5
Melbourne, 1 t. 85
Wellington, 12 cs. 64
**Disinfectants—**
Bilbao, 2 pkgs. £15
Melbourne, 24 cs. 64
Hamburg, 377 cks. 1,885
**Glycerine—**
Bombay, 10 c. £23
**Guano—**
Genoa, 100 t. £1,000
Guernsey, 5 25
**Hypophosphites—**
New York, 5 c. £84
**Manure—**
Rouen, 13 t. 16 c. £79
Riga, 100 270
Stettin, 69 169
Gothenburg, 9 15 33
Samarang, 200 2,150
Libau, 500 1,310
Hamburg, 310 3,265
Santander, 23 13 180
Guadeloupe, 109 1 830
Rouen, 58 16 299
**Phosphorus—**
Lisbon, 1 cs. £10
**Potassium Bichromate—**
Rio de Janeiro, 2 cks. £7
**Potassium Bromide—**
Melbourne, 1 cs. £6
**Potassium Nitrate—**
Bombay, 26 kgs. £25
**Saltpetre—**
Rio de Janeiro, 7 t. 7 c. £143
Bahia, 9 18 224
Oporto, 8 19 181
**Sheep Dip—**
Auckland, 50 dms. 50 cs. £185
Cape Town, 25 cks. 70
Calcutta, 145 49
Natal, 7 cs. 21
Boca, 16 t. 14 c 345
**Soda—**
Algoa Bay, 3 t. 5 c. £11
Kingston, 16 3
**Soda Ash—**
Townsville, 10 t. 2 c. £74
**Soda Crystals—**
Sydney, 26 t. 3 c. £94
**Sodium Bicarbonate—**
Lyttleton, 12 c. £7
**Sodium Carbonate—**
Lyttleton, 2 t. £15
Wellington, 2 10 c. 18
**Sodium Sulphate—**
Ghent, 60 t. £110
**Sodium Tartrate—**
Toronto, 1 t. 5 c. £85
Melbourne, 5 17
**Sulphur—**
B. Ayres, 2 t. 3 c. £39
**Superphosphate—**
Pasages, 98 t. 16 c. £297
Lyttleton, 99 2 328
**Tartaric Acid—**
Wanganui, 5 cs. £25
Sydney, 7 c. 38
Melbourne, 10 56
Wellington, 6 37
Madras, 1 ck. 1 14

## LIVERPOOL.

*Week ending September 7th.*

**Alkali—**
Porto Alegre, 2 t. 1 c. £28
**Alum—**
Montreal, 3 t. £18
Portland, 10 60
Piræus, 2 2 c. 10
Lisbon, 5 6 27
Smyrna, 13 11 67
Alexandretta, 5 30
Ibrail, 5 30
**Ammonium Carbonate—**
Carril, 5 c. 1 q. £8
Antwerp, 1 t. 28
Naples, 1 33
Venice, 1 8 42
**Ammonium Chloride—**
Carril, 1 c. 2 q. £3
Bombay, 5 t. 5 173
Beyrout, 1 10 50
Gijon, 1 14 3 q. 61
New York, 3 5 110
Montreal, 6 11
Marseilles, 6 8
Rio de Janeiro, 1 30
Alexandria, 2 66
Ibrail 18 30
Philadelphia, 13 2 320
**Ammonium Sulphate—**
Barcelona, 50 t. £494
Mexico City, 5 3 c. 50
Venice, 10 6 100
New York, 52 1 q. 518
Genoa, 18 1 175
Leghorn, 58 19 3 587
Valencia, 133 17 1,317
Hamburg, 100 19 1,100
Las Palmas, 26 289
Rouen, 15 150
**Antimony—**
Bombay, 2 cks.

**Barytes—**
San Francisco, 25 cks.

**Bleaching Powder—**
Boston, 758 cks.
Rouen, 15
Baltimore, 187
Cape Town, 5 brls.
Melbourne, 63
Montreal, 51
New York, 215 26
Porto Alegre, 4

**Boracic Acid—**
Antwerp, 1 t. 2 c. £41
Havre, 7 6 1 q. 284
Rotterdam, 8 24

**Borax—**
Lisbon, 17 c. 2 q. £21
Montreal, 4 t. 1 142
Ibraïl, 9 3 15
Colon, 10 cks. 29
Antwerp, 2 1 61
Havre, 2 3
Rotterdam, 7 15 3 230
Valencia, 5 brls. 15
Hamburg, 30 cks. 322
Havana, 10 81

**Carbolic Acid—**
Antwerp, 24 t. 9 c. £880
Hamburg, 4 19 2 q. 265
Halifax, 12 23
New York, 7 2 2 366

**Castor Oil—**
B. Ayres, 70 cs.
C. C. Castle, 3

**Caustic Soda—**
Alexandria, 14 dms.
Baltimore, 50 135 brls. 130 cks.
Boston, 260 15
Carthagena, S., 20 20
Leghorn, 56
Lisbon, 28
Montreal, 25 74 bxs.
New York, 127 100 15
Penang, 10
Philadelphia, 50
Rotterdam, 45
St. Petersburg, 1,200
Smyrna, 15
Talcahuano, 85
Venice, 36
Vigo, 6
Adelaide, 60
Algoa Bay, 27
Aracajou, 11
Barcelona, 350
Galatz, 50 100 kgs.
Genoa, 90
Hamburg, 12
Madrid, 75 125
Malta, 11
Newcastle, 11
Rangoon, 7
Santander, 183
Seville, 100
Sydney, 15
Valencia, 30

**Chemicals** (*otherwise undescribed*)
Bombay, 4 t. 10 c. £145
Genoa, 4 3 q. 5
Alexandria, 2 66
Hamburg, 1 34
Odessa, 1 9 3 50
Porto Alegre, 1 c. 24 cks. 3 kgs. 177
Samrona, 4 c. 6

**China Clay—**
Barcelona, 20½ t.
Bombay, 37
Boston, 371 cks.

**Chloride of Iron—**
Bordeaux, 15 t. 9 c. £59

**Chloride of Lime—**
Callao, 13 c. £8

**Chloroform—**
Montreal, 1 cs.

**Coal Products—**
**Aniline Colour**
Genoa, 3 kgs. 1 cs.
**Aniline Oil**
Genoa, 10 dms.
**Aniline Salt**
New York, 70 cs.

**Cobalt Oxide—**
Valencia, 1 ck. £13

**Colours—**
Boston, 2 cs.
Hamburg, 1 ck.

**Copperas—**
Piræus, 2 t. 7 c. £5
Constantinople, 6 5 1 q. 13
New Orleans, 27 11 3 57
Alexandretta, 2 16 6
Volo, 4 1 1 12
*Alexandria.* 27 9 63

**Copper Sulphate—**
Galatz, 19 c. 3 q. £15
Genoa, 5 t. 71
Constantinople, 1 15
St. John's, Nfld., 5 1 73
Trieste, 3 43
Bari, 10 2 2 139

**Disinfectants—**
Hamburg, 12 t. 9 c. £413
Kurrachee, 5 30
Alexandria, 5 40
B. Ayres, 5 18 112

**Farina—**
Porto Alegre, 10 bgs.

**Glucose—**
Malta, 50 bgs.

**Guano—**
Barcelona, 73 t. 16 c. £720
Carthagena, 10 96

**Gypsum—**
New York, 36 t. 3 c. £133

**Horn Piths—**
Boston, 127 bls.

**Iron Sulphate—**
Valparaiso, 8 t. 17 c. £15

**Magnesia—**
Carril, 1 c. £5
Tarragona, 10 cs.
Montreal, 9

**Magnesium Chloride—**
Bombay, 3 t. 18 c. 3 q. £14
Rangoon. 2 8 13

**Manure—**
Valencia, 120 t. 10 c. 2 q. £329
Havre, 230 2 2 1,109
Genoa, 75 3 460
St. Nazaire, 1,000 5 1 5,030

**Muriatic Acid—**
Porto Alegre, 1 t. £10
Coquimbo, 10 cs. 17

**Oxalic Acid—**
Porto Alegre, 7 c. £13
Kurrachee, 10 15

**Paint—**
Amsterdam, 6 kgs. 9 dms.
Beyrout, 25 brls.
B. Ayres, 4 cks.
Cavite, 120
Conception, 3
Corral, 23 cs.
E. London, 2
Hamburg, 12 kgs.
Lisbon, 2 crts. 2 1
Malta, 8
Matadi, 43
M. Video, 17
New Orleans, 40
Rangoon, 1 cs.
San Juan, 6 100
Sierra Leone, 341
Algoa Bay, 5
Barcelona, 2 brls.
Cadiz, 60
Calcutta, 3
Cape Town, 4 cs. 1 58
Cienfuegos, 2
Genoa, 3
Guayaquil, 10 16
Iquique, 180
Kurrachee, 30 5 20
Lagos, 3
Larnaca, 2
Lima, 3 8 brls. 6
Montreal, 76 67
Naples, 4
Nassau, 2
Newfoundland, 6
N. York, 4 cs. 39 cks. 200 brls. 100 dms. 4 kgs.
Patras, 21 2 cks.
Pt. Elizabeth, 1
Salaverry, 9
Seville, 4
Valparaiso, 118 dms.

**Painters' Colours—**
Baltimore, 80 cks.
Batavia, 200 tins.
Penang. 2
Rio de Janeiro, 10 kgs. 2 brls. 24 dms.
San Francisco, 7
Santos, 25 cs. 5 cks. 10 kgs.
Sherbro, 3
Singapore, 6
Valparaiso, 55 102 cs. 30
Oporto, 10
Pernambuco, 5
Porto Alegre, 10
St. John's, Nfld., 14 5 dms.
San Jose, 18 4 brls.
Santander, 4 8
Sydney, 5 bxs.
Talcahuano, 50

**Phosphorus—**
Santander, 1 c. £11
Hiogo, 30 cs. 386
Shanghai, 10 100

**Pitch—**
Cette, 898 t. 19 c.
Coquimbo, 400 brls.
Penang, 16 c.
Valparaiso, 69 t. 3

**Potassium Chlorate—**
New York, 20 t. £1,081
Philadelphia, 2 10 c. 120
B. Ayres, 15 45
Hiogo, 5 279
Yokohama, 5 279
Boston, 2 10 130
Bari, 3 5 194
Vigo, 1 56
Genoa, 1 10 85
Hamburg, 15 45
Trieste, 2 10 141
Rotterdam, 1 50
Odessa, 10 26
Shanghai, 7 10 378

**Potassium Prussiate—**
Lisbon, 2 c. £10

**Precipitated Chalk—**
New York, 2 t. 2 c. 3 q. £36

**Salt—**
Algoa Bay, 36 t.
Baltimore, 395
Barbadoes, 35¾
Cabenda, 65
Cape Town, 9
E. London, 80 1 c.
Ghent, 22½
Halifax, 200
Montreal, 449
Nogui, 47
New York, 30
Pt. Elizabeth, 13 19
Rio de Janeiro, 2 13
San Francisco, 306 14
Wellington, 250
Barcelona, 30 cks.
B. Ayres, 20
Callao, 2 14
Iceland, 128
Monte Video, 2¾
Philadelphia, 50
Valparaiso, 7½

**Saltpetre—**
Pernambuco, 2 t. 17 c. 1 q. £64
Para, 1 22
Syra, 3 17 2 79
Tampico, 5 105
Porto Alegre, 3 10 3 56

**Sheep Dip—**
Owen Sound, 1 t. 5 c. £28
B. Ayres, 14 1,800
Algoa Bay, 2 40
Monte Video, 3 17 105
E. London, 3 2 100

**Silica—**
Canada, 2 brls.

**Soap—**
Alexandria, 25 cs.
Algoa Bay, 1,561 bxs.
Amsterdam, 50 500
Antofagasta, 10
Antwerp, 39 400
Calcutta, 1,000 8
Colon, 260
Copenhagen, 130
Fiume, 20
Hamburg, 258
Madras, 10
Malta, 50 20
N. York, 16 cks. 875
Pt. Natal, 26 260 tcs.
Rangoon, 1
Rotterdam, 500
Singapore, 25 25
Sourabaya, 1,200
Toronto, 504
Valparaiso, 4
Wellington, 10½ 19 40 dms.
Accra, 44
Assinee, 20
Axim, 135
Barbadoes, 715
Bluefields, 400
Bombay, 5
Brass, 112
Curacao, 1,484
Genoa, 100
Gibraltar, 50
Hong Kong, 14
Kingston, 281
Kurrachee, 500
Lagos, 12
Montego Bay, 100
New Orleans, 100
Para, 1
Piræus, 60 bdls.
Porto Alegre, 10
Quebec, 1
St. Kitts, 300
San Juan, 500
Savanilla, 4
Sierra Leone, 100
Trinidad, 2,374

**Soda Alkali—**
Galatz, 40 brls.
Leghorn, 75
Smyrna, 30
Sydney, 20
Toronto, 85

**Soda Ash—**
Baltimore, 328 cks. 1,199 bgs
Boston, 217 200 brls. 932
Iquique, 1
Monte Video, 25
New York, 631 161 tcs. 1,622
Philadelphia, 851
Rio de Janeiro, 5 100 brls.
B. Ayres, 20
Callao, 23 dms. 40
Hamburg, 100
Montreal, 10 28
San Francisco, 198
Smyrna, 100
Valparaiso, 50

**Soda Crystals—**
Boston, 280 brls.
Sourabaya, 34
Hong Kong, 100
Iquique, 100
Monte Video, 30 kgs.
Montreal, 100
New York, 280
Pernambuco, 10 cks.
Smyrna, 50

**Sodium Arseniate—**
Montreal, 2 brls.

**Sodium Bicarbonate—**
Alexandretta, 17 kgs.
Amsterdam, 20
Bordeaux, 60
Catania, 60
Dunkirk, 28
Genoa, 75 13 cks.
Leghorn, 35 2
Marseilles, 10 10 brls.
Palermo, 15 bgs.
Smyrna, 60
Vera Cruz, 20
Wellington, 50
Antwerp, 30 3
Bilbao, 20
B. Ayres, 30 56
Carthagena, S., 20
Hamilton, 100
Moscow, 200
Nantes, 30
Piræus, 25 brls
Seville, 30
Singapore, 4
Sydney, 250
Toronto, 25

**Sodium Carbonate—**
New York, 112 brls.

**Sodium Silicate—**
Seville, 35 dms.
Barcelona, 19
Carthagena, S., 12
Havre, 4 brls.
Oporto, 6

**Sulphur—**
Cabadello, 11 c. 1 q. £
Trinidad, 26 t. 8 c. 1
Boston, 150 3 77
Antwerp, 5 2
Montreal, 169 19 8
Mexico City, 1
Vera Cruz, 9 16 2 1

**Sulphuric Acid—**
Porto Alegre, 2 t. £

**Superphosphate of Lime—**
Nantes, 109 t. 16 c. 3 q. £

**Tallow—**
Assinee, 2 cks.
Penang, 8 dms.
Sherbro, 6 cs.
Axim, 5
Callao, 1
Huelva, 8
Oporto, 32 tcs.

**Tannic Acid—**
Porto Alegre, 1 ck. £
Rio de Janeiro, 3 c.

**Tar—**
St. John's, Nfld., 4 t. 6 c.

**Tartar Emetic—**
Rio de Janeiro, 2 c. £

**Tartaric Acid—**
Carril, 2 c. £
Porto Alegre, 2 q.
Valparaiso, 6 2

**Varnish—**
B. Ayres, 8 cs.
Naples, 1
**Zinc Chloride—**
Bombay, 8 t. 5 c. 1 q. £71

## HULL.

*Week ending September 3rd.*

**Aluminium—**
Hamburg, 2 cs. 2 cks.
**Benzol—**
Rotterdam, 49 cks.
**Bleaching Powder—**
Reval, 30 cks.
**Caustic Soda—**
Christiania, 20 dms.
Fiume, 86
Libau, 71
Riga, 40
Stettin, 22
**Chemicals** (*otherwise undescribed*)
Amsterdam, 20 pks.
Bremen, 3 cks.
Bombay, 630 180
Bari, 3 8 cs.
Christiania, 22 16 pkgs. 1,434 slbs. 5 cs.
Copenhagen, 80 botls.
Fiume, 20 pks.
Gothenburg, 33 cks. 5 pkgs 612 slbs.
Hamburg, 24 225 cs. 153 pks.
Harlingen, 10
Kurrachee, 80 pks.
Konigsberg, 40
Libau, 100 cks.
Rotterdam, 88 50
Rouen, 15
Riga, 25 1
Stettin, 3 pks. 46 cks. 40 kgs.
Stockholm, 220 pkgs.
St. Petersburg, 196 pks. 119 cks. 4 cs.
**China Clay—**
Bergen, 22 cks.
**Chloroform—**
Antwerp, 2 cs.
**Cottonseed Oil—**
Antwerp, 736 c.
Amsterdam, 360
Bordeaux, 67
Copenhagen, 200
Drontheim, 67
Flushing, 131
Gothenburg, 100
Hamburg, 1,729
Norrkoping, 50
Rotterdam, 1,500
Rouen, 20
Stettin, 202
Stockholm, 101
Trieste, 2,183
**Creosote—**
Gothenburg, 100 cks.
St. Petersburg, 350
**Dyestuffs** (*otherwise undescribed*)
Antwerp, 1 cs.
Hamburg, 3 cks.
Rotterdam, 2
Stettin, 1 1 83 bls.
St. Petersburg, 4
**Guano—**
Dunkirk, 334 bgs.
**Linseed Oil—**
Abo, 120 c.
Bombay, 397
Bergen, 24
Christiansand, 35
Copenhagen, 41
Drontheim, 156
Hamburg, 170
Hango, 102
Kurrachee, 40
Stockholm, 100
Stavanger, 76
Trieste, 146
**Manure—**
Antwerp, 20 t.
Bordeaux, 100 bgs.
Copenhagen, 49
Hamburg, 72
Rouen, 26
**Mineral White—**
Bergen, 20 sks.
**Myrabolams—**
Stettin, 71 bls.
**Ochre—**
Amsterdam, 11 cks.
**Paint—**
Guernsey, 7 c.
**Painters' Colours—**
Antwerp, 32 cks.
Amsterdam, 17
Bombay, 73 cs. 9 30 dms. 284 pks.
Bari, 2 pkgs.
Bergen, 24 dms. 1 174 pks.
Boston, 25
Christiania, 1 15 116
Copenhagen, 15 2 pkgs.
Drontheim, 5
Dunkirk, 40 5
Fiume, 1
Ghent, 11
Gothenburg, 3
Hamburg, 55 8 pks.
Konigsberg, 35
New York, 10 2
Palermo, 2
Rotterdam, 14
Rouen, 4
Stettin, 58
Stockholm, 9
St. Petersburg, 1 cs.
**Pitch—**
Antwerp, 108 t.
**Rosin—**
Christiania, 25 cks.
**Salt—**
Bergen, 1 ck.
**Soap—**
Bergen, 10 cs.
Christiania, 216 1 ck.
**Size—**
Flushing, 32 cks.
Harlingen, 22 bls.
**Tallow—**
Flushing, 5 cks.
Stockholm, 20
**Tar—**
Amsterdam, 6 cks.
Bremen, 1
Bergen, 1
Copenhagen, 5
Hamburg, 15
Stettin, 1
**Varnish—**
Antwerp, 1 cs.
Amsterdam, 16 cks.
Christiania, 3 dms.
Gothenburg, 2
Rouen, 1
Stavanger, 1

## GLASGOW.

*Week ending September 8th.*

**Alum—**
Quebec, 33 t. 14 c. £98
**Ammonium Chloride—**
Italy, 1 t. 10 c. £40
**Ammonium Sulphate—**
Italy, 144 t. 7 c. £750
Bilbao, 5 ¾ 50
Havre, 20 13¾ 195
**Benzol—**
Dieppe, 63 brls. 26 puns. £300
**Bichrome—**
Italy, 6 t. 2¾ c. £200
Italian Ports, 5 14 215
Havre, 5 15¾ 218
Ghent, 7 9½ 260
**Bleaching Powder—**
Calcutta, 50 t. 1 c. £600
**Borax—**
Havre, 1 t. 16½ c. £40
Montreal, 6 7 174
**Carbolic Acid—**
Hong Kong, 1 t. 8¾ c. £25
**Chloride of Lime—**
New York, 10 t. 9 c. £87
**Colours—**
Lisbon, 6 c. £29
Montreal, 3¾ 50
**Copperas—**
Bombay, 19 t. 10 c. £49
**Creosote Oil—**
Huelva, 12 t. 12 c. £21
**Dried Blood—**
Bilbao, 5 t. ½ c. £35
**Dyestuffs** (*otherwise undescribed*)
New York, 2½ c. £4 6s.
**Linseed Oil—**
Peru, 4 t. 8¾ c. £96
Cape Colony, 1 1¾ 26
Mauritius, 1 3 23
Cuba, 2 1 36
Montreal, 7 15¾ 152
Straits, 3 1¾ 67
St. John's, N.F., 409 gls. 38
**Litharge—**
Montreal, 8 t. 18½ c. £136
**Magnesium Sulphate—**
Bombay, 16 t. £62
**Manure—**
New York, 10 t. 1 c. £110
**Naphtha—**
Havre, 4 t. 19 c. £60
**Paint—**
Chili, 28 t. 3¼ c. £505
Peru, 5 11½ 136
Cape Colony, 1¾ £65 10s.
Mauritius, 5 £40
Cuba, 5 18½ 55
Phillippines, 1 19¾ 30
Calcutta, 4 8½ 85
**Painters' Colours—**
Straits, 9 t. 6 c. £94
St. John's, N.F., 4 t. 63
**Paraffin Wax—**
Italy, 13 t. 12 c. £415
Riga, 7½ 180
Havre, 5 18¾ 180
Barcelona, 1 1¼ 36
**Pitch—**
Gothenburg, 89 t. £200
Riga, 20 35
**Potassium Bichromate—**
Rotterdam, 5 cks. £65
**Rosin—**
Bombay, 13 t. 11 c. £73
Calcutta, 54 6 227
**Soap—**
Chili, 1 t. 10 c. £28
Calcutta, 2 4 26
Phillippines, 1 9 20
St. John's, N.F., 1 t. 16 c. 30
**Sulphuric Acid—**
Colombo, 9 t. 15 c. £86
Madras, 4 2½ 20
Bombay, 7 10 37
Straits, 3 30
Phillippines, 4 20
**Tallow—**
Rotterdam, 9 t. 17 c. £304 10s.
**Tar—**
Calcutta, £38
Gothenburg, 11 t. 20
Christiania, 20 brls. 10
Riga, 350 210
Norrkoping, 1,688
Straits, 42 100 177
St. John's, N.F., 50 100 bf-brls. 41
**Varnish—**
Cape Colony, 5¾ c. 10 lbs. £20
Huelva, 4 24
**White Lead—**
Cape Colony, 3 t. 17½ c. £73

## TYNE.

*Week ending September 3rd.*

**Acid—**
Ergasteria, 8 c.
**Alkali—**
Hamburg, 9 t. 7 c.
Antwerp, 5 12
Genoa, 5 3
Christiania, 21 6
Copenhagen, 11
**Ammonium Sulphate—**
Valencia, 50 t.
Odense, 5
**Anthracene—**
Rotterdam, 24 t. 7 c.
**Antimony—**
Hamburg, 8 t.
Rotterdam, 2
**Barium—**
Dunkirk, 5 t. 10 c.
**Barytes—**
St. Petersburg, 10 t.
Reval, 5 3 c.
Odense, 9
**Bleaching Powder—**
Riga, 21 t. 18 c.
Hamburg, 54 11
Lisbon, 5
Dunkirk, 11
Christiania, 29 13
St. Petersburg, 193 2
Reval, 19 18
Rotterdam, 12 6
Konigsberg, 9 19
Nykjobing, 15
Copenhagen, 74 6
Trondhjeim, 11
Danzig, 10 19
Abo, 26 10
Break, 3 4
Gothenburg, 5 1
**Carbolic Acid—**
Huelva, 2 c.
**Caustic Soda—**
Riga, 15 t. 1 c.
Hamburg, 25 1
Valencia, 3
Genoa, 3 9
Copenhagen, 1 3
San Francisco, 30
Danzig, 40 6
Abo, 21 17
Gothenburg, 4 18
**Litharge—**
Riga, 11 c.
Copenhagen, 11
**Manganese—**
Arendal, 10 c.
**Magnesia—**
Hamburg, 13 c.
Antwerp, 1
Genoa, 3
**Paint—**
Hamburg, 1 t. 15 c.
Antwerp, 5
Christiansund, 2
Ergasteria, 1 13
**Plumbago—**
Ergasteria, 4 c.
**Salt—**
Nykjobing, 2 t. 8 c.
**Soda—**
Rotterdam, 23 t. 15 c.
Odense, 5
Abo, 39 16
**Soda Ash—**
Hamburg, 26 t. 12 c.
Lisbon, 15 2
Antwerp, 10 1
Genoa, 5 15
Konigsberg, 82 2
Copenhagen, 19 14
Gothenburg, 40 6
**Sodium Hyposulphite—**
Antwerp, 2 t. 5 c.
Barcelona, 1 3
**Sodium Sulphate—**
Abo, 20 t. 2 c.
**Sulphur—**
Rotterdam, 10 t.
Gothenburg, 125
Abo, 1 2 c.
Gothenburg, 20
**Superphosphate—**
Riga, 296 t. 11 c.
Genoa, 100 1
Reval, 400 1
Nykjobing, 19 12
**Tallow—**
Hamburg, 14 c.
**White Lead—**
Lisbon, 2 t. 3 c.

## GOOLE.

*Week ending August 24th.*

**Bleaching Powder—**
Antwerp, 15 cks.
**Chemicals** (*otherwise undescribed.*)
Antwerp, 2 cks.
Hamburg, 99 1 cs. 32 dms.
Rotterdam, 24
**Coal Products** (*otherwise undesc'd.*)
Ghent, 2 cs.
**Dyestuffs** (*otherwise undescribed*)
Antwerp, 1 ck. 1 dm.
Boulogne, 1 1 cs.
Ghent, 6
Hamburg, 30
**Manure—**
Ghent, 167 bgs.
**Pitch—**
Antwerp, 130 t.

## GRIMSBY.

*Week ending August 27th.*

**Alum—**
Dieppe, 5 cks.
**Chemicals** (*otherwise undescribed*)
Dieppe, 50 cks. 24 pkgs.
Hamburg, 4 18
Rotterdam, 7
**Coal Products** (*otherwise undes.*
Dieppe, 60 cks.

# PRICES CURRENT.

WEDNESDAY, Sept. 14th, 1892.

Prepared by Higginbottom and Co., 116, Portland Street, Manchester.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids :—** | | | | |
| Acetic, 25 °/₀ and 40 °/₀ | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | 50/- | | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 °/₀) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ( ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 10 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 3 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 9 | 17 | 6 |
| ,, ,, (grey) Hull | ,, | 9 | 17 | 6 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 9 | 17 | 6 |
| ,, Liquor, 7 % | ,, | 3 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes :—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8¾ |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 9½ |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 7 |
| ,, 50/90 ,, | ,, | 0 | 1 | 3 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 6½ |
| ,, (crude 60°) | per gallon | 0 | 1 | 6 |
| Creosote (ordinary) | ,, | 0 | 0 | 1½ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 0 | 11 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 44 | 5 | 0 |
| ,, Sulphate | ,, | 15 | 5 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 12 | 6 |
| ,, Litharge Flake (ex ship) | ,, | 14 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, ( brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 6 | 0 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 4 | 0 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 3 | 9 |
| **Oils :—** | | | | |
| Cotton-seed | per ton | 18 | 15 | 0 |
| Linseed | ,, | 20 | 0 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4 |
| ,, American | ,, | 0 | 0 | 5 |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4 |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 7 |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 10 | 0 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10½ |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 | 0 |
| Silver (metal) | per oz. | 0 | 3 | 2½ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 48% | ,, | 5 | 7 | 6 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, | 6 | 5 | 0 |
| ,, ,, (Soda Crystals) | ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 18 | 10 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 10 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8 |
| ,, Borate (Borax) | net, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | net pr. ton (10 ton lots) | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) | ,, ,, (10 ton lots) | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, (10 ton lots) | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 15 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 4½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¼ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 16 | 6 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 0 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | [illegible] |
| ,, Barium, 95 % | ,, | 0 | 0 | [illegible] |
| ,, Potassium | ,, | 0 | 0 | [illegible] |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone : Best Quality (nominal) | ,, | 5 | 0 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 95 | 10 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 20 | 0 | 0 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# HEMICAL TRADE JOURNAL

AND

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ors do not bind themselves to accept the highest or any tender.
ALFRED WEST, Manager.
, Rastrick,
o, 1892.

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## WHAT IS BUTTER SUBSTITUTE?

TO bring to light adulteration in all its phases, and to warn unwary purchasers against the deceptions which they are liable to have practised upon them every day, has always been our aim, and is an object to which we have always steadfastly adhered in these columns.

Important as it is, however, that sophistication, be it harmless or otherwise, should be exposed, still it is equally important to keep before us due cognisance of the difference between substituting an artificial for a natural product, and adding foreign substances to natural produce. For instance, the addition of cottonseed oil to salad oil because of the difference in price between the two articles, and the sale of margarine as a substitute for butter, are two distinct things.

Because we frequently hear of cases where margarine is palmed off as butter, it is not fair to jump to the conclusion made by many that butter substitutes are nothing better than adulterated butter.

It is because the nature of so-called margarine is surrounded with a halo of mystery that its legitimate sale is handicapped, so that with the demand for cheap butter and public prejudice combined, butter substitute is not saleable, and vendors are detected omitting the "substitute."

This prejudice, however, is solely the result of ignorance, which in the present day of scientific enlightenment should not exist. As a matter of fact, margarine is an erroneous name. The oleomargarine of commerce is in reality a mixture of oleine, stearine and palmitine, with the addition of butter fat to produce the flavour of butter. Margarine does not occur in natural fats.

True butterine is a wholesome product, and there should be no confusion between it and true butter. Its cheapness lies in being able to utilize the oleine which can be obtained from animal fat (which is plentiful) and adding to the same sufficient butter fat (which is not so abundant) to give it the properties which characterise butter.

Unfortunately, many false or misleading statements are made by interested persons which make people think that diseased fat and fat obtained from offal are pressed into use in the manufacture of butterine. In the present day this can hardly be said to be the case, but still the stigma remains and influences public feeling. There is no reason why the exact nature of butterine should not be as well known as that of milk or lard. The opinion of Sir Lyon Playfair, an eminent chemist and sanitary authority, is worthy of notice. He says:—"As to the relative wholesomeness of butter and oleomargarine, I do not think there is anything to choose between them. Certainly rancid oleomargarine is a nasty and unwholesome compound; but not any more so than nasty and rancid butter which abounds. . . . . Both are unfit for human food, although both may be purified by well-known processes." It is generally supposed that butter substitute is more difficult of digestion than butter, and in all probability

it is; but it is undoubtedly a cheap and wholesome substitute for butter, and it is manifestly unfair to speak of it in a manner which is derogatory to its use by the poorer classes, who are usually very fastidious on these points. If the public would be content to have a spade called a spade, and would recognise it as such, half the prosecutions which arise over the sale of margarine would never occur; good butter substitute would be sold without any incentive to deception; the public would get far better value than if they purchased bad butter; and, lastly, since oleomargarine can be and has been made of such excellent quality that without the aid of chemical tests it could not be distinguished from real butter, we should drive vendors of butter to sell the dairy product at its best so as to maintain as clearly as possible its reputed superiority to artificial butter.

## THE CHESTER WATER SUPPLY.

THE various complaints made of late against the water supply of Chester have apparently aroused the public interest, and furthermore the matter is being taken up by those who are in a position to secure for this question the investigation which it merits. In his capacity as the president of the Chester Infirmary, the Bishop of Chester has approached the Duke of Westminster regarding this matter. In his letter calling attention to the doubts which exist as to the purity of the Dee as a source of drinking water, the Bishop displays the same tact in matters of arbitration that characterised his action in the capacity of arbitrator during the late Salt Union strike. In his letter he urges the necessity of prosecuting still further that sanitary reform for which Charles Kingsley as far back as 1871 fought so unflinchingly. The danger which we have just escaped from, by keeping cholera out of this country, although a matter of the past, is of sufficient importance to warrant every effort being made to keep our sanitary affairs in such a state as to place difficulties in the way of an epidemic of this nature being spread, rather than to foster the same. As pointed out by the Bishop of Chester, sewage *does* enter the river Dee, and such being the case it can hardly be wise to ignore the fact that the water has been condemned by Dr. Ballard, and especially as many of the evils concerning which he makes complaint, are perfectly apparent to those who are in nowise experts in the matter. Such being the case the advisability of the Water Company taking steps to give the matter a fair and open trial is only too apparent, since if the water is found to be of a suitable nature for drinking purposes, nothing but good can result as far as the Water Company is concerned; whereas if they decline to co-operate in the matter, it is the obvious duty of those in authority to lay the matter before the Local Government Board with a view to an official enquiry. It is pleasing to find that those to whose lot it falls to bring into prominency these doubtful and oft times rather delicate matters, have decided to do so quickly, as they thereby greatly facilitate the likelihood of a satisfactory solution of the matter being arrived at, since unnecessary friction between the contending parties is precluded in as great a measure as is possible.

## THE GERMAN GASWORKS CHEMISTS' ASSOCIATION.

AT a meeting of the above Association, recently held at Frankfort-on-the-Main, under the presidency of Herr Schiele, several questions of interest were discussed. Among these the principal were connected with the testing of coal for gasworks purposes; and the following, says *Kuhlow's Review*, is a summary of the conclusions arrived at.

### CHEMICAL TESTS.

The chemical examination of raw materials for gas distillation is of importance, and should always precede testing on the large scale. The complete chemical examination of gas coals, after careful sampling, can be made the basis of uniformity of supply. The points to be attended to are water, ash, sulphur, coking, and percentage analysis. The first four should be frequently tested.

As to the apparatus employed in the testing; it is desirable that each gasworks should have standard laboratory coal-testing apparatus, by which the fitness of the coal for gas-making, and any material differences in the lighting power, may be determined. The Association should also arrange to acquire a set of the testing apparatus employed in England, for occasional use.

### PHYSICAL TESTS.

As to testing on the large scale, this should always be done, an tests are more reliable the greater the quantity of coal distilled, an greater the duration of the experiments. Not less than 5 tons sh be used, in not less than twenty-four hours. Tests with one r should not be admitted. There ought to be a testing bench, wit own condenser and purifier; but where this is not available, the w works should be drawn upon in the summer time; or particular ben may be arranged so that tests may be made, at constant tempera adjusted to the particular kinds of coal; Princeps alloys being simplest means of regulating the heats. The coke should be extingui with a watering pot, and the least possible quantity of water; it sh be weighed the next day. The volume of gas should be reduce 59° Fahr.; barometric and hygrometric corrections are not neces The tar and liquor should be carefully measured and tested; and gas tested, before purification, for carbonic acid, sulphuretted hydro and ammonia. The lighting power should be tested every quarte an hour, with a hollow top slit burner, using from 4 to 5⅓ cubic f the observations being reduced to a consumption of 5⅓ cubic feet litres) per hour. The product of the total number of cubic metres ton into the number of candles per 5⅓ cubic feet (150 litres) per ho called the "lighting value" of the coal. Otherwise, the numbe candle-hours obtainable from a ton of the coal may be stated. testing the gas, its specific gravity, the total sulphur, and the parti luminous hydrocarbons (benzol, ethylene, methane, etc.) should b certained. Methods of gas analysis to be afterwards compared conferred upon by the Association, with the view of uniformity in s ment of results.

A discussion also took place about testing spent oxide for ferrocyan In Drehschmidt's method cyanogen compounds other than the f cyanides are returned, while only the ferrocyanides are of value. Drehschmidt and Dr. Knoblauch undertook to experiment on subject.

## THE DEMAND FOR CHEMICALS IN SMYRN

THE soap industry to which Mételin, one of the chief islands o Archipelago, is devoted, encourages by its active demands, special market for chemical products. The talc, employed for in soaps, was formerly obtained from Italy; the importation amount 30,000 sacks of 100 kilos. each per annum, and was supplied Genoa. Experiments recently made have shown that the talc cou replaced by calcite, a mineral which occurs abundantly on the is The calcite is powdered in steam grinding works and numerous mills is even sent to Crete and the other districts in the Levant where so made; its price amounts to 3 75-5·20 francs per 40 kilos, accordi the distance. The importation of talc has consequently fallen to 5 sacks of good quality, worth 10 francs the 100 kilos. at Mételin.

The importation of soda, which sometimes reaches 40,000 barre 200-559 kilos., with an average of 25,000 barrels, is also diminish It is being to some extent replaced by the Egyptian soda, but entirely. The soda is originally of English origin, but is actual some extent supplied from Brussels; the French soda costs 25% n and is not imported because its superior quality is of no advantage the industry in question.

The soap works of Mételin use soda of 48° English, which is w 10·75 francs per 56 kilos. on the spot; the barrels are resold produce about 2 francs each.—*Les Corps Gras Ind.*

## RECENT ALTERATIONS IN CUSTOMS TARIF

SINCE August last several changes have been made in the d levied in Norway. On varnishes, drying oils, there been a reduction of ninety per cent. on the old duty, which 0·55 ore per kilogram. (100 ore=Krone of 1s. 1¼d.) while campl paraffin, wood oil, and similar illuminants, American rock oil petroleum are admitted *free*.

The Canadian Legislature have assented to certain alterations w came into force on July 6th last. Molasses, testing by the polaris between 40° and 56° are charged a specific duty of 1½ cents gallon. The same duty is levied on samples testing less than 40°, a addition 1 cent per gallon for each degree or fraction of a degree b 40°. Paraffin wax, stearic acid, and stearin of all kinds, n. e. s. 3 per pound. The following however are now admitted *free*, Dégras, oleostearin, when intended for use in leather manufac waste tin strip, crude lime juice and sodium nitrate.

The Newfoundland *Royal Gazette* announces amongst num additions to the free list the following:—Ceresene, "chloro di nitro zole" and ammonium nitrate.

# OIL OF VITRIOL CALCULATION.

**Weight in lbs. of an inch deep over one square foot.**

| °Tw. | Weight of Acid. | Absolute $H_2SO_4$ At 168·5° Tw. | 81·5 % $H_2SO_4$ At 150° Tw. | °B °Tw. | Weight of Acid. | Absolute $H_2SO_4$ At 168·5° Tw. | 81·5 % $H_2SO_4$ At 150° Tw. |
|---|---|---|---|---|---|---|---|
| 54 | 6·5956 | 2·3744 | 2·9134 | 52°—112 | 8·1017 | 5·2904 | 6·4913 |
| – 55 | 6·6216 | 2·4036 | 2·9492 | 113 | 8·1276 | 5·3317 | 6·5420 |
| 56 | 6·6475 | 2·4596 | 3·0179 | 114 | 8 1536 | 5·3895 | 6·6129 |
| – 57 | 6·6735 | 2·5025 | 3·0706 | 115 | 8·1796 | 5·4435 | 6·6791 |
| 58 | 6·6995 | 2·5457 | 3·1236 | 53°—116 | 8·2055 | 5·4977 | 6·7456 |
| – 59 | 6·7254 | 2·6000 | 3·1902 | 117 | 8 2315 | 5·5480 | 6·8074 |
| 60 | 6·7154 | 2·6553 | 3·2580 | 118 | 8·2575 | 5·5954 | 6·8643 |
| 61 | 6·7773 | 2·7109 | 3·3263 | 54°—119 | 8·2834 | 5·6534 | 6·9367 |
| – 62 | 6·8033 | 2·7553 | 3·3808 | 120 | 8·3094 | 5·7052 | 7·0003 |
| 63 | 6·8293 | 2·8000 | 3·4356 | 121 | 8·3354 | 5·7514 | 7·0569 |
| – 64 | 6·8552 | 2·8449 | 3·4907 | 122 | 8·3613 | 5·8111 | 7·1302 |
| 65 | 6·8812 | 2·8901 | 3·5338 | 55°—123 | 8·3873 | 5·8711 | 7·2038 |
| – 66 | 6·9072 | 2·9466 | 3·6154 | 124 | 8·4133 | 5·9229 | 7·2662 |
| 67 | 6·9331 | 3·0041 | 3·6860 | 125 | 8·4392 | 5·9750 | 7·3312 |
| 68 | 6·9591 | 3·0620 | 3·7570 | 126 | 8·4652 | 6·0314 | 7·4005 |
| – 69 | 6·9851 | 3·0965 | 3·7993 | 56° - 127 | 8·4912 | 6·0847 | 7·4660 |
| 70 | 7·0010 | 3·1549 | 3·8711 | 128 | 8·5171 | 6·1323 | 7·5243 |
| – 71 | 7·0370 | 3·2018 | 3·9286 | 129 | 8·5431 | 6·1931 | 7·5991 |
| 72 | 7·0630 | 3·2489 | 3·9864 | 57°—130 | 8·5691 | 6·2539 | 7·6739 |
| 73 | 7·0839 | 3·2963 | 4·0446 | 131 | 8·5950 | 6·3148 | 7·7487 |
| – 74 | 7·1149 | 3·3440 | 4·1031 | 132 | 8·6210 | 6·3756 | 7·8235 |
| 75 | 7·1409 | 3·3919 | 4.1618 | 133 | 8·6470 | 6·4365 | 7·8983 |
| 76 | 7·1668 | 3·4401 | 4·2209 | 58°—134 | 8·6729 | 6·4973 | 7·9731 |
| – 77 | 7·1928 | 3·4875 | 4·2791 | 135 | 8·6989 | 6·5581 | 8·0479 |
| 78 | 7·2188 | 3·5372 | 4·3401 | 136 | 8·7249 | 6·6190 | 8·1227 |
| 79 | 7·2447 | 3·5976 | 4·4143 | 137 | 8·7508 | 6·6798 | 8·1975 |
| – 80 | 7·2707 | 3·6353 | 4·4605 | 59°—138 | 8·7768 | 6·7407 | 8·2723 |
| 81 | 7·2967 | 3·7213 | 4·5660 | 139 | 8·8028 | 6·8015 | 8·3471 |
| – 82 | 7·3226 | 3·7345 | 4·5822 | 140 | 8·8287 | 6·8624 | 8·4219 |
| 83 | 7·3486 | 3·8213 | 4·6887 | 141 | 8·8547 | 6·9096 | 8·4800 |
| 84 | 7·3746 | 3·8495 | 4·7233 | 60°—142 | 8·8807 | 6·9468 | 8·5381 |
| – 85 | 7·4005 | 3·9001 | 4·7854 | 143 | 8 9066 | 6·9917 | 8·5788 |
| 86 | 7·4265 | 3·9509 | 4·8477 | 144 | 8·9326 | 7·0389 | 8·6367 |
| 87 | 7·4525 | 4·0020 | 4·9104 | 145 | 8·9586 | 7·1016 | 8·7137 |
| – 88 | 7·4784 | 4·0533 | 4·9534 | 61°—146 | 8·9845 | 7·1517 | 8·7751 |
| 89 | 7·5044 | 4·1049 | 5·0367 | 147 | 9·0105 | 7·2084 | 8·8447 |
| 90 | 7·5304 | 4·1567 | 5·1003 | 148 | 9·0365 | 7·2743 | 8·9256 |
| – 91 | 7·5563 | 4·2089 | 5·1643 | 149 | 9·0624 | 7·3406 | 9·0069 |
| 92 | 7·5823 | 4·2612 | 5·2285 | 62°—150 | 9·0884 | 7·4070 | 9.0884 |
| 93 | 7·6083 | 4·3063 | 5·2838 | 151 | 9·1144 | 7·4647 | 9·1592 |
| – 94 | 7·6342 | 4·3591 | 5·3486 | 152 | 9·1403 | 7·5224 | 9·2300 |
| 95 | 7·6602 | 4·4123 | 5·4138 | 153 | 9·1663 | 7·5960 | 9·3202 |
| 96 | 7·6862 | 4·4580 | 5·4699 | 154 | 9·1923 | 7·6696 | 9·4105 |
| – 97 | 7.7121 | 4·5116 | 5·5357 | 63°—155 | 9·2182 | 7·7432 | 9·5008 |
| 98 | 7·7381 | 4·5655 | 5·6018 | 156 | 9·2442 | 7·7836 | 9·5504 |
| 99 | 7·7641 | 4·6196 | 5·6682 | 157 | 9·2702 | 7·8796 | 9·6682 |
| –100 | 7·7901 | 4·6740 | 5·7350 | 158 | 9·2962 | 7·9482 | 9·7524 |
| 101 | 7·8160 | 4·7209 | 5·7925 | 64°—159 | 9·3221 | 8·0170 | 9·8368 |
| 102 | 7·8420 | 4·7757 | 5·8598 | 160 | 9·3481 | 8·1328 | 9·9788 |
| –103 | 7·8680 | 4·8152 | 5·9082 | 161 | 9·3740 | 8·2022 | 10·0640 |
| 104 | 7·8939 | 4·8745 | 5·9810 | 162 | 9·4000 | 8·2908 | 10·1727 |
| 105 | 7·9199 | 4·9261 | 6·0444 | 163 | 9·4260 | 8·3891 | 10·2934 |
| –106 | 7·9459 | 4·9820 | 6·1129 | 65°—164 | 9·4519 | 8·5067 | 10·4376 |
| 107 | 7·9718 | 5·0222 | 6·1622 | 165 | 9·4779 | 8·5783 | 10·5255 |
| 108 | 7·9978 | 5·0786 | 6·2314 | 166 | 9.5039 | 8·7245 | 10·7049 |
| –109 | 8·0238 | 5·1352 | 6·3009 | 167 | 9·5298 | 8·9580 | 10·9914 |
| 110 | 8·0497 | 5·1921 | 6·3706 | 66°—168 | 9·5558 | 9·2691 | 11·3731 |
| 111 | 8·0757 | 5·2330 | 6·4209 | | | | |

**For use in Technical Calculations only.**

# Official Memoranda.

*(From the Board of Trade Journal.)*

## CUSTOMS TARIFF OF GREECE.

The following table gives the duties now levied, and embodies recent changes down to July 27th, 1892. To these rates an additional charge of 10 per cent. is now added to those articles classed in the Conventional tariff.

The Customs duties are payable in gold; if paid in paper the agio is fixed at 15 per cent. for the General tariff, and 32 per cent. for the Conventional tariff.

*Note.*—1 drachme = 100 lepta = $9\frac{6}{10}d$.; 1 dramia = 0·111 ozs. avoirdupois; 1 oke = 400 dramia = 2·8 lbs.; 1 quintal = 44 okes = 123·2 lbs.

| Tariff Classification. | General Tariff. | Conventional Tariff. |
|---|---|---|
| *Resin and other Wood Products.* | Dr. l. | Dr. l. |
| Pitch for vineyards, leaves of the mastic tree suitable for distilling purposes, amber in the rough, and tinder without phosphorous | Free | — |
| Pitch, dry or liquid tar, "English Black," and common resin | Oke 0 5 | — |
| Naphtha, colophane, turpentine, raw gums in general, and all wood products, unprepared, not otherwise specially designated | ,, 0 20 | — |
| Indigo | ,, 3 0 | 0 10 |
| *Minerals Raw, and in General.* | | |
| Flint, borax in natural state, moulding sand, coal, or lignite, chromate, emery, solid limestone, materials for glass manufacture, sulphur ore, sulphur in powder, and sand all colours | Free | — |
| Volcanic ashes (puzzolana), cement, hydraulic lime, earth of Vicenza and Marseilles | Oke 0 5 | — |
| Alum, chalk in pieces, pencils or powder, Spanish or Meudon white | ,, 0 5 | — |
| Ochres of every colours | ,, 0 5 | Free |
| Talc | ,, 0 40 | — |
| Petroleum, refined or raw, and other mineral oils—regard, however, being had of the fact that petroleum is a Government monopoly | ,, 0 43 | — |
| *Chemical Products.* | | |
| *a.* Aniline colours, in crystals or powder | ,, 8 0 | — |
| *b.* Aniline colours, in shapeless lumps | ,, 6 0 | — |
| Oil colours | ,, 0 30 | — |
| *a.* Varnish prepared with oil; and boiled linseed oil | ,, 0 30 | — |
| *b.* Varnish prepared with alcohol | ,, 0 70 | — |
| *a.* All other dry colours, mineral or metallic, such as red lead, white lead, litharge, &c. | ,, 0 40 | Free |
| *b.* All other dry colours, vegetable or animal, with the exception of those specially mentioned | ,, 0 40 | — |
| Perfumes, alcoholic or not, vinegars, pomades, oils, soaps, powders, aromatic pastes for different uses, aromatic herbs and wood, fragrant substances in bags of various tissues, cosmetics, pearl paste, powder, and other toilet articles in any form | ,, 5 0 | 2 50 |
| Soaps in general, not perfumed | ,, 0 40 | — |
| Products of distillery, perfumed, with the exception of volatile oils and perfumes | ,, 1 0 | — |
| *a.* Starch, starch flours of all kinds | ,, 0 20 | — |
| *b.* Potato starch, made bitter to the taste by alteration | ,, 0 5 | — |
| *a.* Ordinary isinglass, glue of hides or bones, and glue of all other kinds, solid or liquid | ,, 0 40 | |
| *b.* Gelatine of all qualities and colours | ,, 1 0 | |
| Matches of all kinds, monopoly | *Prohibited* | |
| White wax in cakes or pieces, stearine and sealing wax | Oke 1 20 | |
| Kerosene; paraffin, and all artificial wax | ,, 1 0 | |
| White wax tapers of all kinds and sizes, and mouldings of wax | ,, 4 0 | |
| Candles | ,, 2 0 | |
| Inks of all colours and qualities, and for all purposes | ,, 0 50 | |
| Potash, soda, caustic soda for making soap and glass, saltpetre for making powder, and sulphide of carbon | Free | |
| Chloride of lime, sulphate of iron (green vitriol), and sulphate of copper (blue vitriol) | Oke 0 5 | |
| Pure acids, that is to say, sulphuric acid (oil of vitriol), hydrochloric acid (spirits of salt), nitric acid (aquafortis), phenic acid and other similar acids, as well as all other chemical products not specially mentioned | ,, 0 20 | |
| Impure acids, so-called acids of commerce | ,, 0 10 | |
| Empyreumatic oils, including oils suitable for lubricating machinery, as well as those used for producing gas | ,, 0 50 | |
| Salt for cooking purposes, monopoly | *Prohibited* | |

## THE RUSSIAN SALT INDUSTRY.

Comparatively speaking, the salt deposits of the Russian Emp as yet little worked. In a long article devoted to the subject of R salt industry which has just appeared in the *Viestnik Financof* stated that the country possesses sufficient salt, not only for its ow but for the whole European consumption, for many centuries.

### THE CONSUMPTION.

The annual consumption of salt in Europe, including Ru estimated at 5,625,000 tons, and yet a comparatively small sec the Iletz mines, by no means the chief salt mines of Russia, is con to contain one hundred milliards of pouds of rock salt. As th cipal centres of the industry are situated in the southern and extremities of the Empire, where until recently there were few port facilities, Russia has always been compelled to draw her sa certain extent from abroad, and even now she imports about tons annually, although no longer so dependent on foreign s since the discovery of rich deposits in Yekaterinburg, the exten the railway system, and the regulation of tariff rates.

Since 1818 both the State and private capitalists have been e in the salt industry in Russia. In the latter case the product ha sold to the State, or else, a fixed duty having been paid, it co sold without further restriction. In this way arose competition b the State and private enterprise, and the Government, witho hibiting the import of salt, imposed a Customs duty equivalent internal salt tax. It was not till 1862 that the Government s wisdom of abandoning such a system, and, retiring from the ente simply levied the tax. As a result the production of salt ros 418,000 tons in 1861 to 723,000 tons in 1862.

### REDUCED TAXATION.

The salt tax brought the Government about £1,583,000. per a and in 1881 this was sacrificed, and the Customs duty also redu the benefit of the agricultural, cattle-rearing, and manufacturin munities. As a consequence the salt consumption rose 80 pe between 1881 and 1890.

The production of rock salt has increased 358 per cent. since that of lake salt 240 per cent., and that of brine salt 98 per cent the whole the production has increased 192 per cent. within the years.

### SOURCES OF PRODUCTION.

*Lakes.*—By far the greater part of Russia's salt is obtained fro lakes. The great lowland lying between the Caspian Sea and t of Aral, and which was once the bottom of an immense sea con with the Arctic Ocean on the north and the Black Sea on the contains several thousands of salt lakes, which, roughly, may be d into three categories: those formed by the alkalisation of the soil

inundations, and those fed by salt springs. The richest of akes is that of Elton, in the government of Astrakhan, and miles from the Volga, where salt has been produced from the imes. This lake is now, however, entirely superseded by skounchak, only about 33 miles from the Volga and more situated for transport purposes. The importance of Bask- was much enhanced by its railway connection in 1882 with the adimir on the Volga.

,000 tons of salt produced in 1866 in the government of , Lake Elton produced 94,000 tons. At that time Lake hak was not being worked. In 1870 the same government 103,000 tons, of which Lake Elton contributed 16,300 tons Baskounchak 20,600 tons. Ten years later Elton produced tons and Lake Baskounchak 162,000 tons, and now the ds more salt than any other place in Russia (16 per cent. of the uction), while Lake Elton is no longer worked.

askounchak has an area of 70 square miles, and is dry during and summer months, when the bed is covered with a layer of ting of various strata, the first of which is from three to four ick, being in its turn made up of strata consisting of salts of alities. The best salt is obtained from the third of these ta from the top, and is known as "*granitka.*" The salt of nt formation is called "*novosadki*;" it is softer than and erred to the "*granitka.*"

e salts have varieties of colour as well as of hardness. Some snow white, others bluish, pink, grey, and black. The the "snow-white."

e is divided into 360 allotments, which are farmed out at rates on every 1,000 pouds of output and determined by public cording to the position of the allotments. The rates vary o and 30 roubles per 1,000 pouds (from 1s. 11½d. to 5s. 10½d. one to three copecks the poud.

arrying, &c., is entrusted by the allotment holders to artels. The average output per man is about 80 or 100 tons son (April to October) for which he gets from 22s. to 32s., to the depth from which the salt is obtained.

aining salt lakes of the Aral Caspian lowland are scattered Caspian coast in the government of Stavropol, the district of , Baku and the Trans-Caspian, Ural and Tourgai districts. e places, however, the salt industry has a purely local sig-

shores of the Caspian Sea, the northern coast of the Black lded with salt lakes, which, though not so rich in salt as the trakhan, yet yield a large quantity.

er expenditure of labour and care is here necessary, as asins have often to be constructed to anticipate the exhaustion es.

our so expended is, however, compensated for by the favour- aphical situation of the salt factories.

lakes of the Crimea may be divided into five groups: those ia, Perekop, Genichesk, Kertch-Theodosian, and Kinburn the lakes in the vicinity of the railway. The lakes of the group belong partly to the State and private capitalists.

e lakes are farmed at charges varying between one and four poud (1¼d. and 4¾d. per cwt.) of the output. The most of them are the Saksk and Sasyk-Sivash lakes which, roduced 84,100 tons of salt in 1890. The most important of lakes is Kamrat, which produced 11,000 tons in that year. of the Perekop lakes is only about 8,000 tons. Of the so- ay lakes, one, extending to the Taganash station of the astopol line, produces 64,300 tons per annum; another, gar, about 56,200 tons, and the whole group about 129,000 Genichesk and the Kertch-Theodosian and Kinburn groups gether about 7,000,000 pouds, making 377,000 tons for all n lakes.

—In point of quantity of output salt from the springs comes ortance. The brine either flows spontaneously from natural s pumped from artificial wells and borings. Provided cheap nd, this branch of the salt industry is very profitable. The of Perm is in every way adapted for carrying on this branch with success. It was first started here in the reign of the surnamed "The Stern." The brine is here pumped from ing between 28 and 90 fathoms. During boring operations es of Count Stroganoff, 11 rock-salt beds, averaging each 20 hickness, were encountered, the first at a depth of 73 fathoms. luction of salt in Perm in 1890 was 289,000 tons, and was m 66 borings and wells. Most of the works are situated nks of the Kama, which affords transport facilities in des- lt and obtaining fuel. The output of the government of sen from 179,000 tons in 1881 to 289,000 tons in 1890.

m comes Kharkoff in the production of salt from brine. is here used exclusively as fuel, and only about half a poud coal is consumed in producing a poud of salt, whereas in the Perm salines, owing, on doubt, to the inferior quality of the coal, 32 cwt. of the latter are required in producing 39 to 43 cwt. of salt.

The chief brine wells of the Kharkoff government are situated near the town of Slaviansk, where, in 1890, there were 21 establishments at work, producing in all 52,000 tons of salt or 2,475 tons each, as compared with 19,290 tons in Perm.

The third place of importance for salines is Bachmut, in the government of Yekaterinoslav, where, in 1890, a single factory turned out 28,200 tons of salt.

The remaining brine-boiling districts are:—Vologda, Archangel, Warsaw, Daghestan, Tersk, and the governments of Yenessei, Irkutsk, and the Trans-Baikal, the prodution in all these being only of local significance.

## THE SULPHURIC ACID TRADE IN BRAZIL.

The Brussels *Bulletin du Musée Commercial* publishes the following particulars of the trade in sulphuric acid in Brazil:—

There is in the country a sulphuric acid factory; it is established at Rio de Janeiro, and its products are considered to be of excellent quality. They are much used in Brazilian industries. Deliveries are made in earthenware demijohns, of a capacity of 30 kilogrammes, and in cases containing two demijohns packed in wood.

A maker of printed calicoes at San Paulo, M. Frederico Kowarick, receives six cases per month, and the six mineral water factories about eight cases. Two mineral water factories at Santos are also supplied from the works at Rio de Janeiro.

The acid of the desired degree of concentration for these factories costs 190 reis* per kilogramme, including package. It is stated that the European product costs more, and it would appear that no industry of the State of San Paulo obtains it from abroad.

The *Companhia Formicida Paulista*, founded at San Paulo in 1890, with a capital 500,000 milreis,† is engaged specially in the manufacture of sulphide of carbon used in the destruction of ants, which are a plague in the country. It will probably make also sulphuric acid for native establishments.

For this trade, as for all others, the conditions of payment are very varied. Some consumers pay ready money; others obtain credits of three, six, and often nine months.

The new tariff does not modify the duty levied on sulphuric acid; pure or colourless, 80 reis per kilogramme; impure, 10 reis, duties estimated for both at 15 per cent. *ad valorem.* Tare is fixed as follows: in earthenware jars, 30 per cent.; in cases, 10 per cent.

## A BONUS ON SALT AND IRON.

The *New Zealand Gazette* publishes two notices issued by the Minister of Mines providing for the payment of bonuses on the manufacture of salt and iron in that colony.

The first notice stipulates that a bonus of £1. per ton will be paid on the production of the first 500 tons of salt, exclusively either by evaporation of salt water or from rock mined in the colony, on condition that the bonus is claimed before the 31st March, 1893. Not more than £250. will be paid for salt manufactured in the North Island, and not more than £250. for salt manufactured in the South Island.

According to the second notice a bonus of £1. per ton will be paid on the production of the first 500 tons of pig iron of marketable quality, manufactured in the colony from magnetic or titaniferous iron-sand or iron ore, all material, fuel, and fluxes being the produce of New Zealand, on condition that the bonus is claimed before the 31st March, 1893.

## THE MANUFACTURE OF LIME-JUICE.

In a recent report the United States Consul at Kingston gives the following description of the manufacture of lime-juice in Jamaica:—

The juice in its crude state is obtained either by running the limes through an ordinary cone mill, when the same is convenient and the fruit to be had in sufficient quantities, or by placing them in a squeezer especially adapted to the purpose, which seems to be the simpler and more usual plan.

To clarify the same requires straining and filtration, when some foreign substance is added to prevent decomposition of the vegetable matter, in which shape most of the juice is shipped from the island.

In order to concentrate, it is strained from the seed and pulp and placed in a copper battery and boiled on the same principle as sugar, care being taken not to scorch or burn it, as that destroys the acid. The more densely the juice is concentrated the more valuable it is; but it is not advisable to go too far, as it burns easily without forming a crust on the copper. No iron vessel must be used, as the iron turns the acid black.

From the latest data (the year ended 31st March, 1891) the amount exported, which was doubtless about all that was made, was 53,884 gallons, of which 44,492 gallons went to the United Kingdom, 110 to Canada, and 9,282 to the United States.

* 214 reis equal 1s. † 30 milreis equal £7.

The average valuation in the export list is 20 cents per gallon, but the price for the raw juice ranges from 18 to 30 cents, according to the supply and the demand, while the concentrated juice sells according to the percentage of citric acid it contains.

Substantially the same process is adopted in the manufacture of sour orange juice, which, when concentrated, I notice to be invoiced at from 45 to 50 cents per gallon; and 1,102 gallons, the entire amount manufactured during the period above stated, was exported to the United States.

## NOVEL USES FOR PAPER.

IN Corea the manufacture of paper is one of the most important industries. Touching this manufacture and the uses to which the finished product is put, the Consul-general of the United States at Corea in a recent report says that in addition to its use for writing and for books, it is employed in a great diversity of ways. It serves as string, and in the manufacture of lanterns, fans, umbrellas, shoe soles, hats, boxes, and coats It is also used for covering floors, walls, and ceilings, and, stretched on frames, supplies windows and doors. Corean paper is highly prized in China and Japan, and is especially sought for the manufacture of umbrellas. It is made from a bush of the mulberry order (*Broussonetia papyrifera*), which is indigenous, growing in many parts of the kingdom, but thriving best in the moist, warm climate of the south. It is chiefly grown from cuttings for this especial purpose, and the wild and cultivated plants are said to be of equal value. The bark, which alone is used, is generally gathered in the spring, and it is boiled for a long time in water, in which a quantity of wood ashes has been mixed, until it becomes a pulp, the mass having been beaten during the whole time of the boiling. Fine bamboo screens are then placed in shallow wooden vats, and a ladle full of the pulp is evenly spread over the screen by a dexterous circular motion of the hand. This operation is repeated once or twice, or as often as may be necessary—the more frequent the operation the finer the paper—and the screen is allowed to drain into the vats until a proper consistency is reached, the drippings being thus saved. They are placed on a hot floor to dry. After the drying has proceeded far enough the paper is again laid on a hot floor and ironed by hand. The long lines in the paper show strands of the bamboo screens, and their nearness, distinctness, or absence indicate the fineness or otherwise of the paper. They are almost imperceptible in some grades of paper, while in others they are distinct and far apart. The province of Chulla is the chief seat of manufacture.

## THE ESTIMATION OF SULPHUR IN BURNT PYRITES.

BY G. LUNGE.

THE author has carefully examined Watson's method (heating with sodium bicarbonate and titration of the alkali not converted into sodium sulphate) and, in conjunction with Schmidt, has succeeded in removing the sources of error which hitherto attended the method, so that the following modified process gives accurate results, and is thoroughly to be relied upon. About 3·2 grms. of the substance are intimately mixed with 2·0 grm. bicarbonate of known strength in a nickel crucible capable of holding 20 grams. and heated first for 10-15 minutes with the top of the flame just touching the bottom of the crucible, so that the bicarbonate alone is decomposed, and then for 15 minutes with a stronger flame until the whole mass is red hot. Fusion, which does not easily take place when a nickel crucible is used, must on no account be allowed to occur. In order to avoid mechanical loss, the crucible must remain covered throughout the whole operation; stirring is not necessary. The mass, which is emptied into a porcelain basin after cooling, is black and porous if the operation has been properly conducted; if too little heat has been employed, it forms a black, almost insoluble cake, as hard as glass. It is then extracted by boiling with water, and, if necessary to obtain a clean filtrate, a concentrated solution of salt carefully neutralized with hydrochloric acid and methylorange added, after which it is filtered through a filter paper moistened with salt solution, the precipitate being stirred up so as to close the pores of the paper at once; if, notwithstanding this, the filtrate comes through greenish yellow, it must be passed through the paper again. The boiling with water is repeated several times, the residue washed with dilute salt solution and the united filtrates titrated with $\frac{N}{5}$ hydrochloric acid, the faintest possible colouration of the indicator being used.

The determination of sulphur in burnt pyrites by means of nitric acid is stated by the author not to give such accurate results as has hitherto been supposed.—*Ztschr. Angew. Chem.*

## ANALYSIS OF COAL-TAR PREPARATI

MESSRS. Helbing and Passmore's latest investigation valuation of disinfectants prepared from coal tar. In they state that, since the bactericidal properties of these p reside in the phenoloid bodies contained therein, the che mation of such bodies is a measure of their activity, so that logical examination becomes unnecessary. Tar oils cont acids (so-called), bases, and hydrocarbons which are mo present in preparations made from them. A method o analysis applicable to the one is, therefore, suited to the o certain limits, which are laid down in the report. For dete hydrocarbons (benzene, anthracene, naphthalene, and the lik in 50 grammes or more of the oils are fixed and removed cent. caustic soda solution, the oils having first been dilu equal volume or more of ether. The ether dissolves the hy and bases, and the small quantity of the latter, washed out is also removed with ether from the alkaline liquors. The etheral liquids are next washed with 1 to 4 sulphuric acid bases, after which the ether is treated by washing and evap hydrocarbons. By fractional distillation the character of th studied and the bases may be estimated in the acid liquor b ing with soda, evaporating to dryness and extracting with sp by only the salts of the organic bases are dissolved out. Th stituents of tar oils are phenol and its homologues. Strictl not acids, but they associate themselves readily with the soda liminary treatment, and are to be sought for in the alkali The process which Helbing and Passmore suggest for this viz., to acidify with sulphuric acid and extract the "acids" which on evaporation yields a residue of the phenoloid bo impossible, the authors say, to separate carbolic acid from logues by practical distillation, owing to the close proxim boiling points, and the only method which they found prac to fractionally precipitate the alkaline solution of tar acids quantities of mineral acid, whereby the carbolic acid is conc the first fraction. So working they were able to satisfy the Jeyes' fluid contains less than 0·25 per cent. of carbolic acid, cent. of other phenoloid bodies.

## THE POSITION OF COAL AND TAR PRO

THE depression which has been experienced in these pro late been the subject of general discussion, and the foll from the *Frankfurter Zeitung* is instructive in showing abroad. Referring to the realisation of the pessimistic prog which appeared in its pages some time back, it says:— situation of the tar products market is at present in a still m factory state than it was some time ago, especially in benzol This is the consequence of the unreasonable incr production of benzol from coke, for which the districts of land-Westphalia, and Upper Silesia in chief are resp in the Upper Silesian district three large benzol m have been built within as many years, while the pro the West of Germany has also considerably increased. In increased production has if anything been even more mar consequence a correspondingly extensive falling off in pric experienced. In spite of the enormous demand which exist and which undoubtedly has increased to a large extent, neve disparity between the production and the consumption completely disorganise the market. The best proof of th found in the fact that the price of benzol has already fallen This enormous decline has necessarily reduced profits to a without, however, leading to any decrease in the produ market is in a precisely similar position to that experienced trade some time back, when in spite of the prevalency of producers seemed unable to effect any reduction in the outp

The demand for other tar products has also experience retrogressive movement. The situation of the sulphate market however, taking all things into consideration, is as be expected. With regard to the price of pitch and tar th long enough shown a tendency to decline, a movement always be looked for with raw materials.

MESSRS. A. HAACKE AND CO.—We learn that this opening a branch in Scotland at 146, Broomielaw, Glas firm is well known in connection with Kieselguhr, but the is Fossil Meal Boiler composition for preventing radiati Boil covering of every description, especially with shee silicate cotton, will be, however, the leading feature at their

## A NEW KIND OF CONCRETE.

XYLOLITH, a peculiar German concrete, made of sawdust combined with other materials which are kept secret, is rapidly gaining a good name as a substitute for wood in building construction. It is made in plates or tiles of any size up to one square metre in area, and has something of the softness and non-conducting property of wood, without its tendency to shrink and warp. Naturally such a substance is found very suitable for covering the treads and landings of iron stairs. It is not only much lighter than the stone treads commonly used in Germany, but does not become polished and slippery by use, and wears very well, the steps resisting abrasion better than those of solid oak. It is also, according to *Kuhlow's Review*, said to be extensively used for flooring market halls, schools, post-offices, railway stations and other places where resistance is as desirable as non-conducting qualities. In hospitals where the latter is an important feature, but must be combined with imperviousness, xylolith has been found useful, and is extensively employed in the new University Hospital at Heidelberg. As the joints are few and close, and are not disposed to open by shrinkage, the floor gives little opportunity for harbouring disease germs; and, being close-grained and susceptible of polish, it is easily kept clean. It has also been employed, set in an iron frame-work, for the walls of small buildings, and, used in this way, it is found to resist fire so well that it is classed by the Berlin fire-police as a desirable material for use in the construction and decoration of theatres. It seems as if there might be a field for such a material in this country. We have plenty of sawdust, cement and silicate of soda at command, and something is certainly needed for our post-offices, railway stations and hospitals better than either stone tiling or inch deal boards.

## NEGRIER'S METHOD OF CONCENTRATING SULPHURIC ACID.

THE high price of platinum has caused a good deal of trouble among the firms in Europe who manufacture highly concentrated sulphuric acid of 66° Beaume. Up to the present time platinum vessels were used for containing the acid during concentration, as this metal is capable of resisting the attacks of the acid better than any other material. During the last year or two the continuously advancing price of platinum has made it necessary to find some substitute. The most practical of the new processes is that of M. Negrier, who employs a series of specially-made porcelain dishes. These dishes are placed in a row, each a little lower than the other, and they are arranged inside an oven, the interior of which is kept steadily at a temperature of 145°-149° C. The acid at 58°-60° B. coming from the chambers enters the first dish in the oven, and passes gradually down the series of dishes, and finally leaves the oven at a concentration of 66° B. In a plant already erected by M. Negrier there are four ovens, each containing two sets of eight dishes. Each oven produces 1,250 kilogrammes of concentrated acid a day, with a consumption of 24 kilogrammes of fuel per 100 kilogrammes of concentrated acid. Only five porcelain dishes out of 64 were broken in a month, and as each one cost about a dollar, the item of repairs and renewals is small enough compared with the interest on capital represented by the use of platinum retorts. The ability of the workmen to avoid breakages of dishes and damages to the ovens are the chief points that effect the practicability of this process, but with a little practice economical results are obtained. On an average one workman is able to turn out 10 tons a day. The porcelain dishes are manufactured in Limoges, France.

## THE SOLUBILITY OF PHOSPHORIC ACID.

PROF. Norman Robinson, State chemist of Florida, has made some interesting experiments on the solubility of the phosphoric acid of Florida phosphates in different solutions. The rock taken for the experiment was a typical sample of hard rock phosphate, containing 74·80% phosphate of lime, 3·20% ferric phosphate, and 2·89% phosphate of alumina. When treated by the usual method, with neutral ammonium citrate, this gave 2·43% available phosphoric acid. In preparing the sample for the various solvents, one gramme of rock was ground with an equal amount of each of the solvents and carefully rinsed into a beaker, where sufficient water was added to bring the volume to 100 c.c., a cover was placed over it and the beaker set aside. In the cases of using potassium hydrate and quicklime as a solvent the materials were placed in a bottle and carefully sealed to exclude air.

The chemicals used as solvents were muriate of potash, containing 93·21% potassium chloride; kainit, containing 23·46% potassium sulphate, with the usual proportions of calcium and magnesium sulphates and sodium chloride; sulphate of potash, containing 94·06% sulphate; commercial flowers of sulphur: caustic potash and nitrate of potash. A check was made for the solvent power due to water alone. After standing five months the samples were opened and the following solvent power of each one determined:

| | Phosphoric acid. Per cent. |
|---|---|
| Pure water alone dissolved | 0·64 |
| Water and muriate of potash | 0·58 |
| ,, ,, kainite | 0·48 |
| ,, ,, sulphate of potash | 0·46 |
| ,, ,, flowers and sulphur | 0·45 |
| ,, ,, caustic potash | 1·19 |
| ,, ,, nitrate of potash | 0·48 |
| ,, ,, caustic lime | 0·00 |

Professor Robinson states that these experiments have been made in answer to many queries received by him as to the solvent power of the salt given. From the results shown he infers that neutral salts retard the solution of phosphoric acid in water and caustic lime absolutely prevents it, and he recommends that caustic lime should not be applied to ground at the same time with phosphoric manures.

## NOTICES.

### LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of
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On usual trade terms.

### FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed* MONEY ORDER is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

## Correspondence.

**** We do not hold ourselves responsible for the opinions expressed by our correspondents.*

### *ANSWERS TO CORRESPONDENTS.*

A. H. AND CO.—Thanks for your letter. See this week's issue.

F. A. L.—It has been sent on. We are sorry for delay.

J. J.—We find on reference the copy was sent to you, but we have forwarded you another.

J. C. O.—We trust you find matter all right now. Thanks for letting us know, as we are always willing to do our best to suit the convenience of our readers in such matters.

C. H. (Brussels)—We trust you have received your copy safely by now.

O. B.—We shall be glad to look you up again, as the matter is of interest to us, and we shall require some information very shortly.

## Trade Notes.

THE BURY CORPORATION PROSECUTED.—The Town Clerk of Bury was served with summonses, at the instance of the Joint Committee of Lancashire and Cheshire on Thursday, for permitting the sewage of the town to enter the rivers Irwell and Roach without being pur fied.

PERSONAL.—Mr. Jos. P. Brunner, of the well-known chemical firm of Northwich, is in New York, and has called upon many of his friends connected with the chemical trade.—Mr. George M'Gowan has been appointed professor of chemistry at the Harris Institute, Preston. Mr. M'Gowan, who for six years has filled the office of first assistant professor of agriculture at the Bangor University, North Wales, takes the place of Dr. Leather, who has received a high appointment in India, for which country he will sail next month.

Scottish Mineral Oil Association.—On Wednesday last a meeting of this association was held at Glasgow, to consider what was to be done with the stocks of paraffin shale. The proposition made by a representative of the Pumpherson Company, for those companies who had sold to take proportionate quantities of the stock was rejected by the meeting. On Thursday, the Candle Makers' Association met in London to consider the position of affairs, but without further prospect of settlement. The Scotch trade does not seem likely to improve, and a reduction in price to 2½d. is rumoured.

The Bolton Bleachers, Finishers, and Dyers.—At the quarterly delegate meeting of the Operative Bleachers, Finishers, and Dyers' Association, held at Bolton recently, a discussion took place on the disputes pending at Ramsbottom and Radcliffe. A resolution was unanimously carried that the pay of both males and females be increased one shilling per week for three months. A statement was also made that upwards of £25. had been received in voluntary subscriptions during the week, which will be distributed amongst the most deserving cases at Ramsbottom, in addition to the pay allowed by the association.

Fatal Explosion.—On Saturday last a fatal explosion occurred at the powder mills at Roslin, Mid Lothian. It is said that the explosion took place after the chemist had conducted some experiments, and while a quantity of powder was being removed by the storekeeper and a powder-maker, both of whom were seriously injured. One of the engineers named John Thomson, who was outside the mill, also received injuries The storekeeper, who was named Johnstone, was at once conveyed to the Royal Infirmary, Edinburgh, where he died on Sunday. The roof of the mill was blown off. The report of the explosion was heard for miles around and caused a good deal of alarm.

Diamine Bronze G.—Messrs. Leopold Cassella and Co. have recently introduced a new direct dyeing diamine fast colour which is named above. It is a self colour, being fast to washing, light, air, and acids, while heat by pressing or ironing produces but little if any change. It can also be used for shading diazotised colours as it is unaffected by the developing process in diazotising. With cotton the bath is prepared with 5 per cent. soda and 15 per cent. of either Glauber's salts or sodium chloride. On half silk 10 per cent. Marseilles soap is used, and for dark shades 15 per cent. Glauber's salt is added. With mixtures the same quantity of Glauber's salt is used with the addition of 5 per cent of borax. It is easily discharged to a pure white in the same way that diamine blues are discharged. The shades of brown, etc, shown on the pattern card are in many cases very pretty, especially on yarns.

White Paint Containing Zinc. In the matter of protest of Middleton and Co., against the decision of the collector of customs at San Francisco as to the rate and amount of duties chargeable on certain white paint containing zinc, imported per *Adcinous*, November 10th, 1891, the following is the opinion by General Appraiser Wilkinson. The merchandise is described on the invoice as zinc white. The drug examiner at San Francisco reported that it was a "mixture of carbonate of lead and oil, containing some little zinc." It was accordingly assessed for duty at three cents a pound, under paragraph 67, N.T., as a white paint containing lead. It is claimed by the appellants to be dutiable at 1¾ cents a pound under paragraph 60. We find upon the analytical report of the chemist of the United States laboratory at this port, to whom the official sample was submitted, that the merchandise is a white paint containing zinc but not containing lead, ground in oil. The claim of the appellants is sustained accordingly.

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

There is but little fresh to report in the tar products market, but a translation from the *Frankfurter Zeitung*, which we give on another page, will perhaps more fully explain the situation. The cholera scare has created a demand for carbolic disinfectants, but it is possible this will soon subside. Anthracene remains *in statu quo*, while pitch is still in good demand.

There is a decided improvement in the sulphate of ammonia market, and quite a rush for prompt delivery has taken place; buyers, who refused to pay £9. 17s. 6d. a short time ago, now willingly purchase at £10., Liverpool, and £10. 3s. 9d at Hull and Leith, while with London outside makes at £10. 1s. 3d. we shall expect to see values very much enhanced if this strong demand continues. The present movement is, however, a little too sudden not to leave room for doubt about the future, but it is very satisfactory to see such a spurt after a long spell of excessive dulness. Forward business is still neglected. Nitrate of soda is steady at 8s.3d.

## THE METAL MARKETS.

LONDON, Wednesday.—Pig iron quiet. Scotch warrants closed at 41s. 4½d. cash. Middlesbrough 39s. 6d. cash, and Hematite 49s. cash. Copper very quiet: Chili bars, G.O.B.'s and G M.B.'s closed at £43. 15s. cash, and £44 3s. 9d. to £44. 11d. 3d. three months. Tin steady: Straits closed at £91. 15s. to £91. 17s. 6d. cash, and £92. to £92. 5s. three months. Australian, £92 5s. cash. English ingots, £94. 10s. to £95. Lead, firm. Spanish, £10. 3s. 9d to £10. 5s.; English, £10. 7s 6d. to £10 10s. Silesian spelter firmer: Ordinary, £18. to £18. 5s Quicksilver: First hands, £6. 7s. 6d., second hands, £6. 6s. *Copper shares* quiet: Cape, 1½ to 1⅝; Copiapo, 2 to 2⅛; Libiola, 3⅛ to 3¼; Mason and Barry, $2\frac{7}{16}$ to $2\frac{9}{16}$; Rio Tinto, $14\frac{11}{16}$ to $14\frac{13}{16}$ Tharsis, $4\frac{5}{16}$ to $4\frac{7}{16}$; Namaqua, ⅝ to ¾; Panulcillo, $\frac{5}{16}$ to $\frac{7}{16}$.

WOLVERHAMPTON, Wednesday.—Some improvement in manufactured iron is reported to-day. Orders for common bars, hoops, and sheets rather more numerous Prices, however, at present unchanged; £7. 5s. to £7. 10s. for sheets doubles; £8. lattens, and £11. 10s. galvanised sheets. Bars £8. best, £6. 15s. merchant sorts, £5. 15s. common. Pigs maintained previous firmness. Sellers would not give way upon 45s. 6d. for Northamptons, 65s. Staffordshire best, and 38s. 6d. upwards common. The quarterly meetings are fixed for October 12th and 13th.

GLASGOW, Wednesday.—Market dull, with fair business. Scotch done at 41s. 6d. 41s. 4d., and 41s. 4½d. cash; also at 41s. 8d. one month; closing with buyers at 41s. 4½d. cash and 41s. 6½d one month, sellers ask ½d more. Middlesbrough closes with buyers at 39s. 6d. cash; sellers ask 39s. 9½d. Hematite closes with buyers at 49s. cash; sellers ask 49s. 6d.

## REPORT ON MANURE MATERIAL.

The business during the week has been in very narrow compass, and prices for both phosphatic and ammoniacal material remain very much as last reported.

There are sellers of 75/80% Florida phosphate rock at 8½d. per unit in cargoes c i.f. to U.K., but we do not hear of any business. Sellers of hot-air-dried South Carolina river rock now offer 55/60% grade out and out at 7d, and invite offers at less: 6¾d. would probably do in some quarters There seems to be a falling-off in the demand for consumption in the United States, and this, coupled with increased production in Florida and easy freights, no doubt, accounts for the further decline in value. Bone ash, too, still drags in the absence of Continental buying, and value can hardly be quoted over £3. 5s., on 70%, nett Hamburg terms.

The market for bones is a shade better, but this arises through difficulty in getting suitable vessels in River Plate, and consequent scarcity of River Plate cargoes. Sellers are naming up to £4. 10s, delivered good U.K. ports, but actual value is probably about £4. 5s. Crushed Kurrachee bones offer for shipment at £4 2s 6d. ex quay Liverpool or Hull, but don't find buyers meantime. Sales of fine East Indian bone meal have been made at £4. 7s. 6d. ex quay Liverpool; for shipment £4. 5s. would be accepted for *fair average quality*. There is more enquiry for charring bones, and £3 17s. 6d. ex quay Liverpool would now be paid for good parcels.

Nitrate of soda is still very quiet, at 8s. 3d. to 8s. 4½d. on spot, according to quantity and test. Due cargoes may be quoted 8s. 1d. to 8s. 3d. per cwt., according to size and test. The quotations for more distant cargoes are nominal, sellers altogether declining to entertain prices based on arrived values, quotations on West Coast rendering the replacing quite out of the question

A parcel of rough River Plate dried blood, arrived Liverpool, sold at 8s. per unit ex quay For finely-prepared home makes 8s. 6d. per unit required delivered free on rails at works.

## MISCELLANEOUS CHEMICAL MARKET.

Bleaching powder is still in strong demand, and price is nominally £9. 17s. 6d. nett f o b. makers' works for October and forward delivery. Some small re-sales, however, have been made during the week at £9. per ton. Chlorate of potash is also dearer in sympathy with bleaching powder, and is scarce for prompt delivery; price on the spot is 7½d. per lb. Caustic soda is without change in price, and current quotations are:—F o b. Tyne, 77%, £11. 15s.; f.o.b. Liverpool, 74%, £11. 5s.; 70%, £10. 5s.; 60%, £9. 2s. 6d.; cream, 60%, £8. 17s. 6d., 10 ton lots and upwards. Soda ash is still in good request for all qualities, and price firm at 1⅜d. per degree f.o.b. For next year's deliveries slight reductions in price have been made. Recovered sulphur, £4. 15s. to £5. f.o.r. Sulphate of copper is

ovement at £15. to £15. 5s. Brown acetate of lime is alteration in position or price. Acetate of soda still scarce price. White sugar of lead is also well maintained. tic and carbonate, are in fair demand, and there is more orward delivery. Carbolic acid crystals have somewhat alue, as have also other grades of carbolic acid, owing to nand. White powdered arsenic is selling freely at the ce, and the market is firm ; further advance is also spoken e. Prussiate of potash, bichromates, sulphocyanides, and chemicals for the textile trades, are generally quiet.

## RPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

alm is quieter. Lagos is still quoted at £22., but sales are Other grades are in the same condition. Olive still mainness and prices are unchanged ; the enquiry is moderate, ot a great deal offering. Linseed is in fairly good demand 20s. per cwt. in export casks. Cottonseed has continued ll the week, and the market is rather steadier in tone. ing quoted 18s. 6d., and American 20s. to 24s. per cwt. there is an improvement, with more business passing. Calcutta being 2⅜ to 2$\frac{7}{16}$ per lb., while first pressure nues unaltered at 2$\frac{9}{16}$. In tallow the demand is slow in of the slight hardening in prices, 23s to 25s. per cwt. now for North American. Resin : All grades are virtually Spirits of Turpentine are still on the advance, having at 21s. 6d. to 21s. 9d. during the week. Petroleum quiet, n and Russian refined unchanged.

S have continued to rule very steady, and there is no ation to report in prices. Ochres: Oxfordshire, common, m, £12., best, £15. ; Derbyshire, common, 40s., ., best, 60s. Welsh, best, 70s., seconds, 50s., and s. ; Irish, Devonshire, 40s. to 45s. ; French, J.C., . ; M.C., 65s. to 67s. 6d. Umber : Turkish quiet. 50s. to 55s. White lead, red lead, and oxide of zinc Venetian red, £6. 10s. to £10. Cobalt : Prepared d. ; black, 9s. 9d. ; blue, 6s. 6d. Zaffres : No. 1, . 2, 2s. 6d. Oxide of iron : Common, £6. ; medium, £20.

## TYNE CHEMICAL REPORT.

TUESDAY.

are steady, with a fair business doing. Bleaching powder ce ; for delivery this month £9. 10s. may be said to be for October £9. per ton is quoted.

owder, softs, £9. 10s. and £10. per ton ; 5s. per ton extra ; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. recovered sulphur, 2 cwt. bags, £4. 17s. 6d. per ton ; , £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, er ton ; alkali, 36%, £4. 18s. 6d. per ton ; white alkali, os. per ton, 50%, £6. 15s. 6d. per ton, 52% hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, t. kegs, £7. 15s. per ton, in 10 ton lots ; silicate of soda, per ton, 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per ystals, in casks, £2. 17s. 6d. per ton gross weight, in £2. 17s. 6d. per ton nett weight ; chlorate of potash, 7d. ; pearl hardening, £3. 10s. per ton nett ; pure white lumina, £4. 10s. per ton ; blanc fixe, £7. 10s. per ton ; rium, £7. 10s. per ton ; nitrate of baryta crystals, £19. nd, £19. 10s. per ton ; sulphide of barium, £7. per ton ; lumina, £28. 10s. per ton ; aluminate of soda, £33. 10s. rate of barium, £11. per ton.

t 10s. per ton, f.o.b. Tees.

her better demand for best steam for the Baltic, also in orthumbrian best steam, 10s. 3d. and 10s. 6d per ton, steam 3s. 9d. and 4s. per ton, f.o.b. ; Bunker coal, 7s. for p to 9s. for best Durham, screened, f.o.b. ; gas coal, 7s. d. per ton, f.o.b. ; coke firm at 15s. and 16s per ton, f.o.b.

## LIVERPOOL MINERAL MARKET.

nding the quietness in trade generally, our market is firm, res brisk. Manganese : The prevailing cholera in Russia shipments from that quarter, hence there are no arrivals, re are practically exhausted, and prices have therefore increased, both for spot and early forward delivery. A considerable advance has been made and is likely to be. Borate, 7d. per lb. ; sulphate, £21. 10s. ; oxalate, 1s. 6d. per lb. ; chloride, £15. ; carbonate, £12. 10s., steady. Magnesite (raw lump): There is no alteration. Raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand), in good demand ; lump 20s., seconds 16s., and thirds 12s. French chalk: Arrivals steady, with increased sales at full figures. "Angel White" brand and "Silvery," 90s. to 92s. 6d. ; prime quality, 90s. to 95s ; and superfine, 105s. Barytes : Carbonate, best lump, none offering ; nuts, 70s. to 80s. ; whilst finest white sulphate is in demand. "Angel White," No. 1, 70s. ; No. 2, 60s. to 65s. ; No. 3, 45s. Pumicestone quiet. Iron ore freely offered ; prices easy ; Bilbao, Irish, and Cumberland easier. Santander and manganiferous quiet. Emerystone: Best quality inquired for. No. 1 lump, £5. 10s. to £6. ; smalls, £5. to £5. 10s. Fullers' earth quiet ; best lump, 55s. ; fine impalpable ground, £7. ; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal in good demand, and prices are firm. Chrome ore quieter. Antimony ore steady at £12., and metal £43. to £44. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. 10s. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured ; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese steady, and prices are unchanged. Plumbago : Spanish, £5. ; best Ceylon lump at last quotations ; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6. ; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d. ; good medium, 22s. 6d. to 25s ; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) steady ; finest quality 22s. to 23s.

## THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated Liverpool, September 16th, 1892. state :—

The Chili Charters for the past fortnight are advised as 1,100 tons, and Exchange 17$\frac{5}{16}$d. The total charters since 1st January are 16,150 tons.

Since our last the market for G.o.b.'s and G.m.b.'s has again for the most part been quiet with little alteration in values, closing to-day with buyers of cash at £44. 2s. 6d., and three months at £44. 11s. 3d.

The s. *Isabelle*, from Dunkirk, brought 496 tons bar copper, which was transferred to the Swansea stocks.

The total stocks in Liverpool, Swansea, London, and Havre show an increase of 183 tons for the fortnight.

The stocks include about 4,700 tons of copper sold, but not yet delivered to smelters.

The visible supply shows an increase of 397 tons for the fortnight, and the total deliveries for the fortnight are 3,514 tons.

The present stock of English G.m.b.'s in warehouse, Liverpool and Swansea, is 2,451 tons, against 2,499 tons on the 2nd inst. The delivery in Liverpool and Swansea was 78 tons, but 30 tons being added to the Swansea stock, makes the decrease 48 tons for the fortnight.

Refined and manufactured sorts are quiet. Quotations being :— Tough cake, £47. to £47. 10s. ; best select, £48. to £48. 10s. ; Indian sheets, £52. to £53. ; strong sheets, £55. ; and yellow metal sheets, 4⅞d. per lb.

The sales of furnace material comprise—at Liverpool : 600 tons ordinary Montana Matte, at 9s. ; 100 tons Columbian Matte, at 9s. 1½d. ; 300 tons Chili regulus. at 8s. 9d. ; 52 tons Argentiferous Chili regulus on private terms ; 125 tons Mexican ore at 8s. 4½d. ; 70 tons Cueva de la Mora precipitate, to arrive, at 8s. 10½d., and 50 tons on the spot also at 8s. 10½d. per unit. At Swansea : nil.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

In sulphate of ammonia the recently reported better feeling has been maintained, and the demand for stuff on immediate despatch is decidedly healthy as compared with previous long-standing indifference. The price has not advanced however, being merely sustained, and there are some who regard the better tone as not more than a transitory development, owing to the present Continental position, in the prospect of next year's cropping. Forward enquiry hardly exists, the latest business being £10. 2s. 6d.

Bleach is reported as still scarce, but hardly so urgently called for, and with last week's values barely maintained. There has been a

further advance in chlorate of potash, and a further drop in sulphate of copper, but these are about the only changes.

The crisis in the paraffin manufacture continues, and the accumulation of stocks has become so unbearable that a serious crash is quite within the immediate reckoning. Prices of scale and wax given below are the convention fixtures; but the Scotch makers have made no contracts, consumers confining themselves to American imports. It is rumoured that the liquidator of the Burntisland Oil Company has been selling at a considerable reduction. Makers had their adjourned meeting on Wednesday last, but without other result than a further adjournment for another week. The effect upon oil stock quotations on the Exchange has been very disastrous. At the moment mineral oil investments are next door to unsaleable at any price.

Chief prices current are:—Soda crystals, £2. 17s. 6d., nett Tyne; alum in lump, £5. 10s., nett Glasgow; soda ash, 1⅜d., less 2½%, Tyne; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; refined alkali, 1⅝d., less 2½% Tyne; bleaching powder, £9. 5s. to £9. 10s. nett Tyne; saltcake, 36s. 6d.; borax, English refined, £29., and boracic acid, £37. 10s. nett, Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 7½d., less 5% Liverpool; nitrate of soda, 8s. 3d. to 8s. 6d.; sulphate of ammonia, £9. 17s. 6d. to £9. 18s. 9d. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £14. 5s. less 5% Liverpool; paraffin scale (hard), 2$\frac{15}{16}$d., and soft 2$\frac{5}{16}$d. to 3d. per lb.; paraffin wax, 120°, semi-refined, 3⅝d. to 4d.; paraffin spirit (naphtha), 7d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower); ditto (lubricating), 865°, £3. 5s. to £3. 15s., 885°, £4. 10s. to £6., and 890/895°, £5. to £7. Week's imports of raw sugar at Greenock were 9,670 bags.

## New Companies.

**Barton-Wright, Limited.**—Capital £16,000. in £1. shares, to carry on the business of antimony smelters and to procure oxide of antimony for the manufacture of star metal. The subscribers to the memorandum of association are:—R. B. Wright, Dover, engineer; N. Hart, 56, Crouch Hall-road, Crouch End, N., engineer; E. T. Wright, Dover, theological student; R. Rivington, 158, Cromwell-road, Kensington, tea planter; G. Sturt, Strawberry Hill, solicitor; F. J. Humphreys, 8 Hyde Park Gate, S.W., solicitor; W. H. Head, 18, Kensington Court-place, merchant.

**C. Carrington & Son, Limited.**—Capital £3,000. in £5. shares, to acquire and carry on the business of chemist and druggist lately carried on by Mr. Charles Carrington, Heaton-lane, Stockport.

**John Freeman, Sons, & Co., Limited.**—Capital £100,000. in £1. shares, to acquire and carry on the business of makers of bricks and artificial stone, also dealers in lime, cement, clay, etc. The subscribers to the memorandum of association are:—L. B. J. Hamilton, 36, Kensington Mansions, Earl's-court, S.W.; B. J. Diplock, Falmouth, Cornwall; H. C. Kelburn, Mulholland Stobart, Knapp, Bideford; J. W. Freeman, Flushing, Falmouth; B. Freeman, 70, Ba Court-road, London; W. G. Freeman, 44, Kensington-square, S. Y. Freeman, 44, Kensington-square, W.

**Sarsons, Limited.**—Capital £25,000. in £5. shares. This pany is formed with a view to carrying on the business hitherto ducted by Henry Sarsons and Son, of Birmingham, as manufacture glass, glass blowers, cutters, spinners and bevellers. The subscr to the memorandum of association are:—H. A. Sarsons, Wood Birches-green, Erdington, glass manufacturer; A Sarsons, Erdin glass manufacturer; J. L. Shepherd, "Lindenhurst," Aston Vil works'manager; J. J. Wilson, Birmingham, accountant; W. J. shaw, King's Norton, chartered accountant; E. Pritchard, mount, Selby-mount, Birmingham, civil engineer; A. L. Ta Gilbertstone, Lyndon-end, solicitor; F. W. Rice, Balham, S civil engineer.

## The Patent List.

*This list is compiled from Official sources in the Manchester Tech Laboratory, under the immediate supervision of George E. Davis Alfred R. Davis, who report professionally upon the value of Chem Patents.*

### APPLICATIONS FOR LETTERS PATENT.

**Calcining Furnaces.** A. Dauber. 15,880. Sept. 5th.
**Obtaining Metals by Electrolysis.** H. H. Frei. 15,887. Sept 5th.
**Production of Dextrose.** A. Rumpler. 15,897. Sept. 5th.
**Grinding Phosphates and Bones, etc.** J. U. Ashham. 15,924. Sept. 5t
**Purification of Coal Gas.** J. J. Hood and A. G. Salamon. 15,925. Sept. 5
**Improvements in Dry Soap.** W. H. Horton and E. M. Taylor. 1 Sept. 7th.
**Multiple Evaporating Apparatus.** A. MacNeill. 16,019. Sept. 7th.
**Electrolytic Decomposition of Alkaline Salts.** H. Y. Castner. 1 Sept. 7th.
**Iodine Compounds.** H. E. Newton. 16,112. Sept. 8th.
**Gas Furnaces.** F. J. Clinch-Jones. 16,134. Sept. 9th.
**Apparatus for Measuring Electricity.** E. H. P. Humphreys and W. F Greene. 16,176. Sept. 9th.
**Manufacture of White Lead and Oxide of Lead from Crude Sulpha Lead.** P. Bronner. 16,184. Sept. 9th.
**Galvanic Batteries.** J. B. Fachris. 16,201. Sept. 10th.
**Chemical Compound for Treating Tobacco.** G. S. Yingling, J. K. Pfalt and G. K. Pfaltzgraff. 16,202. Sept. 10th.

## Gazette Notices.

### PARTNERSHIPS DISSOLVED.

S. Jessup and L. W. Lee under the style of Jessup, Lee and Co., Chelsfield, lime and whiting manufacturers and cement merchants.

T. W. Ballard and A. A. Myall under the style of T. W. Ballard and Leyton, asbestos fuel manufacturers.

### BANKRUPTCY ACTS, 1883 and 1890.

**Receiving Order.**

Ashworth, Ann, and Outram Elizabeth, Greetland, near Halifax, late me of the firm of Benjamin Outram and Co., dyers and finishers, Ellistones.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending September 10th.*

**Acetate of Lime—**

| | | |
|---|---|---|
| U.States, | 1,800 pkgs. | H. Wallace & Co. |

**Acetic Acid—**

| | | |
|---|---|---|
| Holland, | 100 pkgs. | Phillipps & Graves |
| Belgium, | 2 | Leach & Co. |
| Holland, | 200 | Beresford & Co. |
| ,, | 132 | A. & M. Zimmermann |

**Acetone—**

| | | |
|---|---|---|
| Holland, | 24 pkgs. | A. & M. Zimmermann |

**Alum—**

| | | |
|---|---|---|
| Holland, | 11 pkgs. | Ohleuschlager Bros. |

**Antimony—**

| | | |
|---|---|---|
| Sydney, | 21 t. | Bk. of N. S. Wales |
| N. S. Wales, | 55 | T. Merry & Sons |
| France, | 14 pkgs. | B. & F. Wf. Co., Ld. |
| Spain, | 20 | J. Bamber |
| Germany, | 80 | Craven & Co. |

**Asbestos—**

| | | |
|---|---|---|
| Germany, | £120 | Phillipps & Graves |
| Italy, | 50 | Beck & Pollitzer |
| ,, | 268 | Brit. Asbestos Co. |

**Barytes—**

| | | |
|---|---|---|
| France, | 40 brls. | J. B. Orr & Co. |
| Germany, | 24 cks. | Prop. Scott's Wf. |
| ,, | 28 | W. Harrison & Co. |
| Belgium, | 43 | Hemingway & Co. |
| Belgium, | 11 | J. Foulger & Sons |
| ,, | 67 | 130 bgs. W. Harrison & Co. |
| ,, | 200 | Leach & Co. |

**Calcium Carbonate—**

| | | |
|---|---|---|
| Holland, | 7 pkgs. | Phillipps & Graves |

**Caoutchouc—**

| | | |
|---|---|---|
| France, | 9 c. | Flageollet & Co. |
| E. Indies, | 28 | L. & I. D. Jt. Co. |
| ,, | 127 | ,, |
| Madagascar, | 68 | A. Cheney & Co. |
| ,, | 37 | Procter Bros. |
| ,, | 220 | McKellar, Carr, & Co. |
| ,, | 3 | Prop. Bull Wf. |
| S. Russia, | 1 | L. & I. D. Jt. Co. |
| Zanzibar, | 153 | ,, |
| Majunga, | 41 | L. & I. D. J |
| Italy, | 57 | A. Laming |
| Brazil, | 16 | Prop. Bo |

**Carbolic Acid—**

| | | |
|---|---|---|
| Holland, | 24 pkgs. | G. Rahn |

**Carbonic Acid Gas—**

| | | |
|---|---|---|
| Germany, | 3 pkgs. | H. L |

**Castor Oil—**

| | | |
|---|---|---|
| France, | 6 brls. | Beresford |
| Italy, | 60 cs. | Stebbing |
| ,, | 25 B. & N. | Wh |
| ,, | 30 | Evans, L |
| Penang, | 6 | L. & I. D. |
| Belgium, | 30 | Fuer |

**Chemicals** *(otherwise undescribed)*
Germany, 72 pkgs. T. H. Lee
Italy, 107 J. B. Orr & Co., Ltd.
Germany, 99 A. & M. Zimmermann
Holland, 20 Phillipps & Graves
" £18 J. Parlevliet
Germany, 6 Phillipps & Graves

**Cream of Tartar**—
France, 15 pkgs. Ross & Deering
" 2 G. S. N. Co
Spain, 6 W. C. Bacon & Co.
Holland, 16 Middleton & Co.

**Dyestuffs**—
**Aniline**
Holland, 12 pkgs. J. Owen
**Cochineal**
Canaries, 51 pkgs. Hammond & Co.
" 9 Sperling & Williams
**Divi Divi**
Jamaica, 95 pkgs. Park, Macfadyen, & Co.
**Extracts**
France, 4 pkgs. Flageollet & Co.
U. States, 4 Beresford & Co.
" 100 W. Burton & Sons
Germany, 396 Boutcher, Mortimore, & Co.
Denmark, 1 R. J. Fullwood & Co.
France, 1 T. H. Lee
" 43 Carey & Sons
**Gambier**
Singapore, 370 pkgs. Beresford & Co.
E. Indies, 1,232 W. H. Cole & Co.
Singapore, 86 Adamson, Gilfillan, & Co.
**Indigo**
E. Indies, 14 chts. W. Brandts, Son, & Co.
" 29 L. & I. D. Jt. Co..
Holland, 4 Ripley, Roberts, & Co.
**Madder**
Holland, 6 pkgs. Ross & Deering
**Myrabolams**
E. Indies, 379 pkgs. Beresford & Co.
**Orchella**
Ceylon, 9 pkgs. Hoare, Wilson, & Co.
Madagascar, 14 Prop. Bull Wf.
**Safflower**
Spain, 1 pkg. A. Franker & Co.
**Tanners' Bark**
Adelaide, 6 t. Baxter & Hoare
" 29 Union Bk of Aust.
Cape Town, 3 Dyster, Nalder, & Co.
Singapore, 2 c. Foy, Morgan, & Co.
Natal, 36 Hicks, Nash, & Co.
" 67 A. & W. Nesbitt
Adelaide, 147 Beresford & Co.
**Turmeric**
E. Indies, 200 pkgs. L. & I. D. Jt. Co.
" 93 Hopkins, Ford, & Co.
**Valonia**
Penang, 30 t. J. Graves

**Dyestuffs** *(otherwise undescribed)*
France, 14 pkgs. Skilbeck Bros.
U. States, 3 W. W. Young

**Farina**—
Holland, 20 pkgs. J. Knill & Co.

**French Chalk**—
Italy, £260 W. Harrison & Co.

**Glucose**—
U. States, 145 pkgs. 800 c. T. D. Duche & Sons
" 595 595 c. R. G. Hall & Co.
" 804 1,051 L. & I. D. Jt. Co.
Holland, 5 40 J. Knill & Co.
" 200 200 Trier, Meyer, & Co.
France, 100 100 Barrett, Tagant & Co.
U. States, 200 200 Fellows, Morton, & Co.
" 2,085 3,710 Union L. Co., Ltd.
" 210 210 L. Sutro & Co.
" 178 979 Prop. Chmbln.'s Wf.
" 495 495 J. Barber & Co.
" 2,000 2,000 Beresford & Co.

**Guano**—
Argentine, 168 t. F. Huth & Co.

**Lithium**—
Germany, 2 pkgs. Spies Bros. & Co.

**Manure**—
Italy, 1 t. M. D. Co.
Sydney, 61 pkgs. A. Gibbs & Sons

**Ochre**—
Holland, 4 cks. 6 cs. Phillipps & Graves
France, 99 W. Harrison & Co.
" 34 Stobbs, Wilson, & Co.

**Painters' Colours**—
Germany, 5 cks. T. H. Lee
" 31 pkgs. Phillipps & Graves
Italy, 15 W. Harrison & Co.
Holland, 16 J. Owen
" 13 R. Baelz & Co.
" 40 Craig & Ruse
" 54 Magee, Taylor, & Co.
U. States, 7 G. S. N. Co.
" 22 brls. Anglo-American Oil Co.
Germany, 12 pkgs. L. & I. Dk. Co.
Belgium, 16 T. Palmer
Germany, 6 Spies Bros. & Co.
" 25 cks. J. Matton
Holland, 6 Phillipps & Graves
France, 41 Flageollet & Co.
Italy, 19 T. Hubbuck & Son, Ld.
France, 6 Bennett S. S. Co., Ld.
Germany, 10 C. S. Lovell
U. States, 6 Williams, Torrey, & Co., Ltd.

**Paraffin Wax**—
U. States, 2,115 brls. J. H. Usmar & Co.
" 172 H. Hill & Son

**Phosphate Rock**—
Holland, 300 t. Anglo Contl. G. Wks.
Belgium, 200 T. Farmer & Co.
U. States, 2,251 Fox, Roy, & Co.

**Pitch**—
N. Russia, 300 c. W. E. Malcolm & Co.
Germany, 50 brls. C. B. Leighton
Sweden, 100 cks. Sieveking, Droop, & Co.

**Plumbago**—
Germany, 2 cks. Brown & Elmslie
Ceylon, 40 brls. Prop. Sun Wf.
E. Indies, 35 H. A. Litchfield & Co.
Germany, 73 H. J. Enthoven & Sons
Holland, 17 cks. B. Gallaway
Ceylon, 50 Beresford & Co.

**Potash**—
France, 100 c. F. W. Berk & Co., Ltd.

**Potash Salts**—
Holland, 10 pkgs. R. Morrison & Co.

**Potassium Bicarbonate**—
Holland, 4 pkgs. A. & M. Zimmermann

**Potassium Carbonate**—
Holland, 300 c. Spies Bros. & Co.
France, 85 J. A. Reid

**Potassium Cyanide**—
Holland, 5 pkgs. F. Boehm

**Potassium Permanganate**—
Holland, 25 pkgs. F. Boehm
" 30 T. Palmer
Germany, 3 Spies Bros. & Co.

**Potassium Sulphate**—
France, 60 pkgs. Weatherley, Mead, & Co.
Belgium, 64 F. W. Berk & Co., Ld.

**Rosin**—
U. States, 2,310 brls. Prod. Brokers Co.
" 1,500 Fairclough, Dodd, & Co.
" 600 H. Hill & Sons
" 737 G. Nutter & Co.

**Salicylates**—
Holland, 15 pkgs. R. Morrison & Co.

**Salt Cake**—
France, 160 t. Weston & Westall

**Saltpetre**—
Germany, 115 cks. 98 pkgs. P. Hecker & Co.

**Soda Ash**—
Belgium, 108 c. Leach & Co.

**Sodium Acetate**—
Belgium, 8 pkgs. Lister & Biggs

**Sodium Sulphate**—
Holland, 106 pkgs. Beresford & Co.

**Stearine**—
Belgium, 265 bgs. H. Hill & Sons
U. States, 200 L. P. D. Co.
Holland, 27 H. Hill & Sons
France, 69 J. Goddard & Co.
" 515 Beresford & Co.
Belgium, 41 C. S. Lovell
" 63 H. Hill & Sons

**Sulphur**—
Italy, 3 t. McDougall & Bouthron

**Tallow**—
N. Zealand, 20 cks. Gear Meat Prsvg. Co.
Adelaide, 10 Anning & Cobb
N. S. W., 113 Dalgety & Co.
N. Zealand, 74 Cuthbert & Hall
" 40 Culverwell, Brooks, & Co.
" 7 N. M. & A. Co. of N.Z.
" 13 Flack, Chandler, & Co.
" 14 J. Graves
" 71 Nelson Bros.
" 85 Hicks, Nash, & Co.
" 8 Dalgety & Co.
Queensland, 387 Goldsbrough, Mort, & Co.
Sydney, 15 Hicks, Nash, & Co.
" 483 A. G. Anderson
Sydney, 145 Leach & Co.
" 38 Goad, Rigg, & Co.

**Tar**—
N. Russia, 1,210 brls. W. F. Malcolm & Co.

**Tartaric Acid**—
France, 50 pkgs. B. & F. Wf. Co., Ltd.
Holland, 6 "
Holland, 5 Middleton & Co.

**Turpene**—
Germany, 7 pkgs. F. Stahlschmidt & Co.

**Tin Oxide**—
Germany, 11 cks. H. Lambert

**Turpentine**—
Savannah, 2,616 brls. 3,213 cks. Nickoll & Knight
" 3,298 Prod. Brokers Co., Ld.

**Ultramarine**—
Germany, 18 pkgs. G. Steinhoff
Belgium, 12 W. Harrison & Co.
Holland, 5 cs. Haeffner, Hilpert, & Co.

**Varnish**—
France, 1 pkg. Flageollet & Co.
U. States, 25 H. Johnson & Sons
" 2 Pinchin, Johnson, & Co.
Belgium, 10 Stobbs, Wilson, & Co.

**White Lead**—
Belgium, 80 brls. Horne & Co.
" 51 cks. T. & W. Farmiloe
Holland, 19 Burrell & Co.
Belgium, 9 Leach & Co.
Germany, 5 H. Lambert
" 11 W. Taylor & Co.
" 29 Randall Bros.
" 39 Magee, Taylor, & Co.
" 22 W. Fenton
Holland, 50 T. & W. Farmiloe
" 27 A. & M. Zimmermann

**Zinc Oxide**—
Holland, 626 cks. Soundy & Sons
" 23 Magee, Taylor, & Co.
" 50 brls. M. Ashby, Ld.

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## LIVERPOOL.

*Week ending September 8th.*

**Acetate of Lime**—
New York, 2,971 bgs.

**Acetic Acid**—
Rouen, 4 cbys. Co-op. W'sale Society, Ld.
Rotterdam, 17 botls.

**Barytes**—
Rotterdam, 12 cks.

**Boracic Acid**—
Leghorn, 20 cks.

**Borate of Lime**—
Valparaiso, 732 sks.

**Bone Ash**—
Rio Grande do Sul, 595 t. Robinson & Hadwen

**Borax**—
Havre, 115 pkgs. Cunard S. S. Co., Ld.
Leghorn, 3 brls.

**Castor Oil**—
Marseilles, 277 brls. 10 cs.

**Caustic Potash**—
Dunkirk, 72 dms.

**Chemicals** *(otherwise undescribed)*
Rouen, 26 cks. Co-op. W'sale Society, Ld.

**Chloroform**—
Havre, 1 cs. Cunard S. S. Co., Ld.

**Colours**—
Rotterdam, 11 cks.

**Cream of Tartar**—
Rotterdam, 3 cks.

**Dyestuffs**—
**Algorabilla**
Tortoratillo, 600 sks.
Valparaiso, 62 bgs. Schintz & Co.
**Argols**
Oporto, 24 cks. German Bank of London
**Cutch**
Rangoon, 500 bxs. Heap & Co.
" 1,928
**Extracts**
New York, 18 brls. 100 bxs.
Marseilles, 25 Longshaw, Puckman & Co.
" 20
**Fustic**
Jamaica, 62¾ t. B. Hall & Co.
**Gambier**
Singapore, 451 bls.
**Madder**
Cyprus, 6 bls.
**Myrabolams**
Bombay, 1,129 bgs. D. Sassoon & Co.
" 1,030
**Orchella**
Lisbon, 131 bgs. A. Barbosa & Co.
**Sumac**
Palermo, 2,380 bgs. 50 bls.
**Tanners' Bark**
Marseilles, 95 bls.
**Valonia**
Smyrna, 40 t. 100 bgs.

**Farina**—
Antwerp, 37 cs.
Hamburg, 200 bgs.

**Glucose**—
Rouen, 10 cks. Co-op. W'sale Society, Ld.
New York, 745 brls.

**Iodine**—
Iquique, 59 brls. A. Gibbs Sons & Co.
Valparaiso, 35 "
" 128 W. & J. Lockett
" 28

**Lime**—
New York, 140 cs.

**Linseed Oil**—
New York, 1 brl. J. C. Dobell & Co.

**Manganese**—
Gothenburg, 200 t. Macqueen Brs.

**Manure**—
Barbadoes, 1 bg.

**Mica**—
Rouen, 10 cks. Co-op. W'sale Society, Ld.

**Nitrate—**
Iquique, 10,683 bgs.
**Ochre—**
Rouen, 50 cks. Co-op. W'sale Society, Ld.
**Paint—**
Havre, 1 pkge. Cunard S. S. Co., Ld.
Hamburg, 35 cks. 14 pkgs. A. Booth & Co.
Amsterdam, 2
Marseilles, 71 cs.
**Painters' Colours—**
Antwerp, 5 cks. J. T. Fletcher & Co.
**Paraffin Wax—**
New York, 60 brls. Gevese Oil Works, Ld.
**Phosphate—**
Montreal, 423 t.
" 43 Anglo-Con. Phosphate Co.
Antwerp, 500
**Phosphoric Acid—**
Hamburg, 6 cs.
**Potash—**
Hamburg, 11 brls.
Rouen, 50 cks. Co-op. W'sale Society, Ld.
**Potash Salts—**
Hamburg, 1,524 bgs.
**Pyrites—**
Huelva, 1,705 t. Tennants & Co.
" 1,410 Matheson & Co.
**Rosin—**
Ceara, 21 bls. Gunston, Son & Co.
Brunswick, 3,229 brls.
Savannah, 4,120
Norfolk News, 1,000 Paterson, Downing & Co.
**Salt—**
Hamburg, 1,016 bgs. 340 t.
**Saltpetre—**
Kurrachee, 300 bgs. W. & R. Graham & Co.
Hamburg, 120 kgs. 7 cks.
**Soap—**
Leghorn, 50 cs. 50 bxs.
New York, 250 brls. Simmonds, Hunt & Co.
" 14 bxs. Richardson, Spence & Co.
Malta, 1 pkge.
Marseilles, 15 cs.
New York, 50 bxs. E. Thomson
**Soapstone—**
Genoa, 200 bgs. G. G. Blackwell
**Stearine—**
Rouen, 23 bgs. Co-op. W'sale Society, Ld.
Antwerp, 87 1 ck.
**Sulphur—**
Catania, 134 brls. 40 bgs.
Hamburg, 19 A. Booth & Co.
**Tallow—**
Baltimore, 47 hds.
Rouen, 62 cks. R. J. Francis & Co.
Boston, 95 hds.
Timaru, 90 cks.
New York, 100 hds.
Philadelphia, 100 tcs.
**Tar—**
Archangel, 1,540 brls. J. H. Hind & Co.
**Tartar—**
Bordeaux, 5 cks.
Naples, 3 R. Powles
**Tartaric Acid—**
Rotterdam, 21 cks. 10 kgs.
**Turpentine—**
Savannah, 800 brls.
**Ultramarine—**
Rotterdam, 8 cs.
**Varnish—**
Marseilles, 3 brls.
**White Lead—**
Antwerp, 20 cks.
Rotterdam, 46
**Zinc Oxide—**
St. Nazaire, 10 brls.
Antwerp, 90
Rotterdam, 85 cks.
**Zinc White—**
Antwerp, 25 cks.
In transit, 40 cs.
Rotterdam, 100 cks. O. & H. Marcus

## HULL.

*Week ending September 10th.*

**Alizarine—**
Rotterdam, 5 pks. 31 cks. W. & C. L. Ringrose
**Asbestos—**
Flushing, 1 cs. Zeeland S. S. Co.
**Barytes—**
Antwerp, 45 cks. Bailey & Leetham
Bremen, 22 Todd & Son
**Caoutchouc—**
Hamburg, 4 cs. C. M. Lofthouse & Co.
**Chemicals** (*otherwise undescribed*)
Bremen, 10 kgs. 1 cs. Veltmann & Co.
Dunkirk, 20 dms. Wilson, Sons & Co., Ld.
Hamburg, 17 cks. "
Antwerp, 161 pks. "
**Colours—**
Rotterdam, 16 cks. G. Lawson & Sons
" 10 cs. 41 27 pks. W. & C. L. Ringrose
Antwerp, 12 Bailey & Leetham
Amsterdam, 1 W. & C. L. Ringrose
Rotterdam, 18 Sissons Bros. & Co.
Hamburg, 1 cs. Wilson, Sons & Co., Ld.
Bremen, 2 cks. 4 Veltmann & Co.
" 8 Sissons Bros. & Co.
Flushing, 13 3 284 pks. Zeeland S. S. Co.
Rotterdam, 1 Blundell, Spence & Co.
Ghent, 7 brls. Wilson, Sons & Co., Ltd.
Dunkirk, 2 cs. "
Antwerp, 2 cks. "
**Dried Blood—**
Libau, 242 bgs.
**Farina—**
Ghent, 120 cs. Wilson, Sons & Co., Ld.
Harlingen, 60 bgs. W. & C. L. Ringrose
Hamburg, 50 Wilson, Sons & Co., Ld.
**Glucose—**
New York, 160 brls.
**Guano—**
Aalesund, 1 bg. Brekke & Howlid
**Lime—**
New York, 2,313 sks. Wilson, Sons & Co., Ld.
**Manganese—**
Rotterdam, 70 cks. Furley & Co.
**Paint—**
Antwerp, 1 cs.
**Pitch—**
Archangel, 250 brls.
**Pitch and Tar—**
Archangel, 150 t.
**Pyrites—**
Drontheim, 103 t. Wilson, Sons & Co., Ld.
**Rosin—**
Uleaborg, 5 cs. J. Good & Sons
**Soda—**
Rotterdam, 135 bkts. Reckitt & Sons
**Stearine—**
Rotterdam, 10 bgs. Wilson, Sons & Co., Ld.
**Talc—**
New York, 171 bgs. Wilson, Sons & Co., Ld.
**Tallow—**
Copenhagen, 10 cks. Wilson, Sons & Co., Ld.
Antwerp, 10 bgs. "
**Tar—**
Uleaborg, 1,200 brls. J. Good & Sons
Archangel, 2,070
**Tartaric Acid—**
Rotterdam, 2 cks. Hutchinson & Son
**Tin Oxide—**
Rotterdam, 7 bkts. G. Lawson & Sons
**Turpentine—**
Uleaborg, 2 cks. J. Good & Sons
Libau, 53
**Ultramarine—**
Amsterdam, 1 cs. W. & C. L. Ringrose
**Varnish—**
New York, 10 brls. Wilson, Sons & Co., Ld.
**White Lead—**
Rotterdam, 92 cks. Tudor & Sons
" 47 Sissons Bros. & Co.
" 16 Storry, Witty & Co
" 8 T. F. Chambers & Co.
" 18
" 1 Wilson, Sons & Co., Ld.
" 10 J. W. Davis & Son
Antwerp, 39 Bailey & Leetham
Rotterdam, 18 A. Sanderson & Co.
" 13 Hanger, Watson & Harris
" 12 G. Lawson & Sons
**Zinc Oxide—**
Rotterdam, 25 cks. Hutchinson & Son

## GLASGOW.

*Week ending September 15th.*

**Alkali—**
Rotterdam, 20 cks. J. Rankine & Son
**Alum—**
Hamburg, 134 cks.
**Amyl Acetate—**
Hamburg, 1 cs.
**Aniline Salt—**
Rotterdam, 5 cks. J. Rankine & Son
**Asbestos—**
Havre, 212 bgs.
**Barytes—**
Rotterdam, 116 cks.
**Barytes Sulphate—**
Antwerp, 100 bgs. 18 cks.
**Castor Oil—**
Marseilles, 15 css. 357 brls.
**Colours—**
Rotterdam, 11 cks. J. Rankine & Son
Antwerp, 4
**Cream of Tartar—**
Marseilles, 13 brls.
**Dyestuffs—**
**Alizarine**
Rotterdam, 172 cks. 1 kg.
**Aniline Colours**
Rotterdam, 1 cs. J. Rankine & Son
**Extracts**
Baltimore, 20 brls. J. Pattison & Co.
Antwerp, 5 cks.
Fiume, 1,038 brls.
**Madder**
Marseilles, 12 brls.
**Valonia**
Smyrna, 25 t. W. Bunten & Co.
" 390
**Guano—**
Tromsoe, 630 bgs.
Christiania, 700
**Lead Acetate—**
Hamburg, 15 cks.
Antwerp, 11 Robertson M'Intosh & Co.
**Magnesia—**
Hamburg, 10 brls.
**Ochre—**
Marseilles, 24 brls.
**Potash—**
Rotterdam, 85 cks. J. Rankine & Son
**Potassium Carbonate—**
Hamburg, 46 cks.
**Pyrites—**
Huelva, 1,728 t. Tharsis Co.
**Rosin—**
New York, 662 brls.
**Salicylic Acid—**
Hamburg, 1 cs.
**Soap—**
Marseilles, 43 css.
**Soda—**
Rotterdam, 9 cks. J. Rankine & Son
**Tallow—**
New York, 55 hhds.
Baltimore, 150 tcs. J. Osborne &
**Tartar—**
Bordeaux, 1 ck. J. Hutchi
" 7 cks.
**Ultramarine—**
Rotterdam, 10 cs. 2 cks. J. Rank &
**Waste Salt—**
Hamburg, 610 bgs.
**White Lead—**
Rotterdam, 115 cks.
**Zinc Oxide—**
Antwerp, 25 cks.
Rotterdam, 5 J. Rankine & S
**Zinc Sulphate—**
Hamburg, 14 cks.
**Zinc White—**
Rotterdam, 50 cks. J. Rankine & Son

## TYNE.

*Week ending September 10th.*

**Alum Earth—**
Hamburg, 35 cks. Tyne S. S. C
**Barytes—**
Rotterdam, 46 cks. Tyne S. S. C
**Chemicals** (*otherwise undescribed*)
Gothenburg, 1 bx.
**Colours—**
Hamburg, 3 cks. Tyne S. S. C
**Pitch—**
Archangel, 675 c.
**Salt—**
Rotterdam, 110 t. Tyne S. S. C
Hamburg, 280 Clepham Wien
**Saltpetre—**
Hamburg, 8 cks. Tyne S. S. C
**Sulphur—**
Huelva, 1,811 c.
Pomaron, 999 t. Mason & Barr
**Tar—**
Archangel, 1,215 brls.
**Ultramarine—**
Hamburg, 40 cks. Tyne S. S. C
**White Lead—**
Antwerp, 42 brls. Tyne S. S. C

## GRIMSBY.

*Week ending September 3rd.*

**Caoutchouc—**
Hamburg, 5 pkgs.
**Chemicals** (*otherwise undescribed*)
Hamburg, 6 pkgs.
**Farina—**
Hamburg, 225 bgs.
**Size—**
Antwerp, 2 cks.
**Tartar—**
Dieppe, 10 cs.
**Zinc Ashes—**
Antwerp, 4 cks.

## GOOLE.

*Week ending August 31st.*

**Acetic Acid—**
Rotterdam, 2 cs.
**Alizarine—**
Rotterdam, 32 brls. 80 pkgs.
**Alum—**
Rotterdam, 14 cks.
**Caoutchouc—**
Boulogne, 5 cks.
**Dyestuffs** (*otherwise undescribed*)
Boulogne, 12 cks. 3 cs. 34 pkgs.
**Farina—**
Hamburg, 150 bgs.
Delfszyhl, 100
**Glucose—**
Dunkirk, 50 bgs.
**Potash—**
Calais, 14 cks. 39 dms.
Dunkirk, 4
**Waste Salt—**
Hamburg, 1,016 bgs. 110 t.
**Zinc Oxide—**
Antwerp, 30 brls.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending September 14th.*

**Acid—**
Singapore, 14 pkgs. 12 drs. £28

**Alkali—**
Philadelphia, 2 t. 2 c. £50
E. London, 9 16
Malta, 6 7
Bombay, 2 2 12

**Alum Cake—**
Bordeaux, 5 t. 8 c. £15

**Ammonia—**
Hamburg, 16 c. £36
Cape Town, 3 kgs. 15

**Ammonium Carbonate—**
B. Ayres, 4 c. £8
New York, 233 pkgs. 699
Bombay, 6 c. 12

**Ammonium Chloride—**
Cologne, 8 cks. £41
Salonica, 4 brls. 36
Constantinople, 19 c. 30
Trebizonde, 16 25
Sydney, 1 t. 2 31

**Ammonium Nitrate—**
Algoa Bay, 19 rnlts. £150

**Ammonium Sulphate—**
Cologne, 56 t. £550
Dunkirk, 5 50
Treport, 25 250
Marseilles, 115 2 c. 1,160
Rotterdam, 15 4 150

**Amorphous Phosphorus—**
Hong Kong, 2 cs. £27

**Arsenic—**
M. Video, 10 c. £7
Sydney, 20 drs. 15

**Barium Nitrate—**
New York, 2 t. £40

**Bisulphide of Carbon—**
Rosario, 50 drs. £25

**Bisulphite of Lime—**
Calcutta, 1 t. 9 c. £23
Rangoon, 3 12 89

**Borax—**
Hamburg, 16 cks. £132
B. Ayres, 4 c. 7
Amsterdam, 5 cs. 15
Melbourne, 5 t. 250

**Borax Crystals—**
M. Video, 6 c. £9

**Carbolic Acid—**
Rotterdam, 5 t. 10 c. £84
Dusseldorf, 40 drs. 180
St. Petersburg, 150 cks. 320
Amsterdam, 4 16 41
Danzig, 3 cs. 11
Hamburg, 9 12 25 182
Barcelona, 4 16
Philadelphia, 80 318
Stettin, 4 9 35
Hamburg, 13 16 25 248

**Carbolic Oil—**
Hamburg, 11 t. 7 c. 249

**Carbonic Acid Gas—**
Sydney, 6 cs. £10

**Caustic Potash—**
Canterbury, 2 t. 3 c. £86
Otago, 2 7

**Caustic Soda—**
Philadelphia, 60 t. £667
Algoa Bay, 2 77
Brisbane, 5 10 c. 59
Sydney, 1 10 20
Canterbury, 10 162
Cape Town, 9 14
E. London, 12 19
Natal, 1 13 30

**Chemicals** *(otherwise undescribed)*
Hamburg, 5 pkgs. £15
Penang, 2 cs. 45
M. Video, 8 10

**Chloride of Lime—**
Cape Town, 2 t. £21

**Citric Acid—**
Natal, 3 cs. £16
Rotterdam, 6 c. 48
Hamburg, 2 t. 2 330
St. Petersburg, 3 5 20 cks. 3 kgs. £1,295
B. Ayres, 6 50
Calcutta, 1 cs. 3 26
Kurrachee, 2 19
Odessa, 8 63
Libau, 2 19
E. London, 1 12
Sydney, 11 74
Melbourne, 11 74
Bombay, 2 16
Rosario, 10 80

**Citric and Tartaric Acids—**
Hamburg, 7 kgs. £49

**Citrochloric Acid—**
Fremantle, 1 cs. £10

**Coal Products—**
**Alizarine**
New York, 50 cks. £790
Boston, 6 90
**Aniline**
Melbourne, 1 cs. £10
Wellington, 3 13
**Aniline Oil**
Genoa, 10 drs. £400
**Aniline Salts**
New York, 37 pkgs. £260
**Anthracene**
Rotterdam, 323 cks. £1,349
Dusseldorf, 295 2,307
**Benzol**
Calais, 10 cks. 8 dms. £262
Treport, 12 206
Rotterdam, 40 16 drs. 549
**Carbolic Acid**
Hamburg, 10 cks. 200 brls. £119
**Coal Tar Dyes**
New York, 11 pkgs. £290
**Creosote**
Hamburg, 8 cs. £10
Dieppe, 23,500 glns. 123
**Creosote Oil**
Treport, 27 brls. £62
Antwerp, 588 253
**Cresylic Acid**
Hamburg, 25 brls. £101
**Naphtha**
Adelaide, 50 dms. £13
Calais, 7 rnlts. 27
Brisbane, 10 drs. 13
**Naphthalene**
Le Treport, 50 bgs. £39
**Paraffin Scale**
Copenhagen, 10 brls. £36
**Pitch**
New York, 1,040 cks. £610
Dunkirk, 96 t. 150
Boston, 500 256
Antwerp, 569 712
**Pyridine Bases**
Hamburg, 24 cks. £206
**Tar**
Baltimore, 500 brls. £250
Batavia, 15 rnlts. 8
Bombay, 15 26
Adelaide, 38 cks. 50
Danzig, 500 200
New York, 1,001 513
Brisbane, 50 drs. 10
**Tar Oil**
Gothenburg, 500 cks. £365
Calais, 50 brls. 40
**Wood Spirit**
Adelaide, 18 dms. £18

**Coal Products** *(otherwise undesc'd.)*
Singapore, 20 dms. £16

**Copper Sulphate—**
Victoria, V. I., 10 c. £10

**Corrosive Sublimate—**
St. Petersburg, 10 c. £133

**Cream of Tartar—**
Fremantle, 3 c. £14
Brisbane, 10 42
Adelaide, 1 t. 10 143
Bunbury, 4 cs. 10
Sydney, 1 ck. 11
Melbourne, 1 10 127
E. London, 1 5
Hobart, 6 28

**Cresylic Acid—**
Hamburg, 37 cks. £147

**Disinfectants—**
Bombay, 7 t. £65
Hamburg, 263 cks. 9 pkgs. 610 bgs. £456
Malta, 9 24
Melbourne, 1 cs. 16
Sydney, 12 17 112
Wellington, 4 27
Montreal, 5 35
Adelaide, 9 22

**Flowers of Sulphur—**
E. London, 4 t. 9 c. £50

**Guano—**
Valencia, 25 t. £180

**Hydrofluoric Acid—**
E. London, 7 c. £40

**Hypophosphite of Soda, Lime, and Potash—**
New York, 11 c. £185

**Hyposulphite of Soda—**
Sydney, 1 t. £8

**Lead Acetate—**
B. Ayres, 12 c. £17

**Manure—**
Hamburg, 50 t. £188
Leghorn, 115 780
Genoa, 20 165
Barcelona, 56 4 c. 448
Orotava, 15 90
Morlaix, 182 1,320
Tarragona, 105 2 840
Treport, 114 2 835
Bordeaux, 36 180
Demerara, 10 10 174
Rouen, 254 15 1,330
Lisbon, 200 12 503

**Mirbane—**
Wellington, 4 cs. £14

**Oxalic Acid—**
Wellington, 6 c. £8

**Potash Crystals—**
New York, 13 c. £21

**Potassium Bicarbonate—**
Philadelphia, 1 t. 8 c. £40

**Potassium Bichromate—**
B. Ayres, 5 c. £12

**Potassium Carbonate—**
B. Ayres, 12 c. £13

**Potassium Chlorate—**
B. Ayres, 6 c. £21
Treport, 20 kgs. £62

**Potassium Cyanide—**
Madras, 3 cs. £14
Bombay, 5 cks. 27

**Potassium Iodide—**
Calcutta, 1 ck. £66

**Saltpetre—**
Sydney, 5 t. £110
Santos, 25 9 c. 571
Hamburg, 1 3 27
Malaga, 6 5 129
Oporto, 2 4 44
Para, 14 14 316

**Sheep Dip—**
B. Ayres, 2,000 cs. £6,000
Melbourne, 7 pkgs. 20
Calcutta, 2 6
Sydney, 50 100
Cape Town, 21 73
Algoa Bay, 3 t. 9 c. 123
Auckland, 209 drs. 69

**Soda—**
Hong Kong, 3 t. 5 c. £15
Melbourne, 2 15

**Soda Crystals—**
Fremantle, 13 c. £12
M. Video, 1 t. 10 5

**Sodium Bicarbonate—**
Victoria, V. I., 5 c. £2
Kurrachee, 1 t. 5 10
Adelaide, 5 33
M. Video, 10 4
E. London, 4 3
Sydney, 11 12

**Strontium Nitrate—**
New York, 3 t. 6 c. £99

**Sulphur—**
Natal, 10 cks. £10

**Sulphuric Acid—**
Natal, 2 cs. £10
E. London, 30 cks. 30
Aden, 10 14

**Superphosphate—**
Harlingen, 15 t. £40
Lyttelton, 25 89

**Tartaric Acid—**
Kurrachee, 15 c. £84
Newcastle, 3 15
B. Ayres, 10 60
Melbourne, 10 51
Algoa Bay, 3 17

**Tar Salts—**
Algoa Bay, 5 cs. £32

**Toluidine—**
New York, 20 drs. £520

## LIVERPOOL.

*Week ending September 14th.*

**Acetic Acid—**
Lisbon, 1 t. 3 c. 3 q. £18

**Alum—**
Alexandretta, 3 t. 13 c. £19
Vigo, 2 5 13
Montreal, 3 10 21
Galatz, 5 15 34
Alexandria, 10 60
Oran, 3 10 21
Beyrout, 3 10 21
Rosario, 5 30
Havana, 6 15 26

**Alum Cake—**
Havana, 4 t. 14 c. 2 q. £24

**Aluminous Cake—**
Calcutta, 12 t. 12 c. 1 q. £46

**Ammonia—**
Iquique, 10 c. £25
Rangoon, 3 t. £50

**Ammonium Carbonate—**
Hamburg, 10 c. 2 q. £17
Genoa, 1 t. 10 42
Oporto, 10 14

**Ammonium Chloride—**
Galatz, 1 t. 6 c. 2 q. £43
Trieste, 2 3 6 74
Melbourne, 1 1 3 23
Philadelphia, 16 8 5 128
Syra, 9 2 16

**Ammonium Sulphate—**
Hamburg, 53 t. 8 c. 3 q. £520
Philadelphia, 50 4 540
Genoa, 20 19 200
Barbadoes, 50 t. 10 c. 520
Montreal, 1 19 3 22
Valencia, 189 16 1,874
Malaga, 50 16 3 496
New York, 50 18 1 527
Bordeaux, 12 10 125
St. Nazaire, 10 2 100
Rouen, 57 4 552
Rotterdam, 100 1,200

**Antimony—**
Galatz, 1 ck.

**Barytes—**
Volo, 9 cks.

**Barytes Chlorate—**
New York, 10 c. £40

**Bleaching Powder—**
Baltimore, 372 cks.
Barcelona, 12
Bilbao, 24 brls. 40 kgs.
Boston, 134
Genoa, 71
Ghent, 65
Lisbon, 10
Mexico City, 18 dms.
Montreal, 62
New Orleans, 65
,, York, 326
Oporto, 43 50 pps.
Rio de Janeiro, 18
Rotterdam, 86
Cochin, 90 cs.
Hamburg, 41 100 25 kgs.
Naples, 15
Philadelphia, 28
Terneuzen, 25
Vera Cruz, 36

**Bone Ash—**
Algoa Bay, 5 c. 3 q. £10
**Boracic Acid—**
Genoa, 1 t. 3 q. £41
Montreal, 1 1 40
**Borax—**
Montreal, 1 t 18 c. £47
Cadiz, 1 30
Antwerp, 12 cks. 14 15 3 q. 613
Hamburg, 17 5 3 508
Rotterdam, 28 13 2 863
**Calcium Chloride—**
Boston, 10 t. 3 c. £22
New York, 14 12 2 q. 35
**Carbolic Acid—**
New York, 5 t. £230
Kingston, Jam., 4 cs. 5
Hamburg, 53 t. 5 c. 3 q. 1,696
Piræus, 3 2 8
Rotterdam, 36 14 1 854
Bombay, 10 14
**Castor Oil—**
Accra, 5 cs.
**Caustic Potash—**
Algoa Bay, 16 c. £31
New York, 10 t. 8 291
**Caustic Soda—**
Adelaide, 36 dms.
Alicante, 50
Barcelona, 200 20 cks. 70 brls.
Bari, 123
Beyrout, 75
Calcutta, 115
Chicago, 200
Cienfuegos, 30
Fiume, 60
Genoa, 502
Havana, 50
Lisbon, 28
Monterey, 4
New Orleans, 60 bxs.
,, York, 540
Ontario, 25
Oporto, 180
Para, 20 brls.
Piræus, 10
Portland, 35
Port Natal, 3 bxs.
Salonica, 36
Samrona, 18
San Francisco, 36
Savanilla, 20
Seville, 6
Sourabaya, 5
Tarragona, 40
Algoa Bay, 17
Amsterdam, 74
Carril, 3 cks.
Carthagena, U.S., 8
,, S., 20
Catania, 5
Monte Video, 50
Montreal, 35
Nantes, 35
Naples, 10
Odessa, 130
Philadelphia, 50
Santos, 142
Yokohama, 25
**Chemicals** (*otherwise undescribed.*)
Calcutta, 10 cs. £24
**China Clay—**
Barcelona, 8 cks.
Bombay, 318 100 bgs.
Boston, 478 t.
Lisbon, 45½
**Chromic Acid—**
Hamburg, 2 c. 1 q. £6
**Coal Products—**
**Alizarine**
Rio de Janeiro, 1 ck.
**Alizarine Oil**
Vera Cruz, 6 cks.
**Aniline Colours**
Montreal, 3 cks.
New York, 14
Rio de Janeiro, 44 kgs.
Bombay, 11 cs.
Shanghai, 30
**Aniline Salts**
New York, 35 cks.
**Cobalt Oxide—**
Gijon, 3 q. £45
**Copperas—**
Volo, 2 t. 2 c. £5
Alexandretta, 2 14 6
Calcutta, 14 25
B. Ayres, 2 19 7
**Copper Sulphate—**
Constantinople, 2 t. 10 c. £37
Vera Cruz, 10 152
Naples, 8 13 126
Oporto, 7 7 3 q. 105
Lisbon, 4 19 3 72
Bari, 3 19 2 58
Genoa, 2 10 1 36
Ancona, 3 12 1 52
Port Limon, 10 7
Antwerp, 1 15
Bombay, 2 10 37
Rotterdam, 10 3 145
Sydney, 5 71
Rouen, 15 11 233
San Benito, 5 7 1 83
Barcelona, 13 6 2 193
**Disinfectants—**
Calcutta, 2 cs. £14
Bombay, 10 c. 4
**Farina—**
Bombay, 18 bgs.
**Flowers of Sulphur—**
Vera Cruz, 10 c. £5
**French Chalk—**
Philadelphia, 10 kgs.
**Guano—**
Barcelona, 147 t. 12 c. £1,440
**Gypsum—**
New York, 96 t. 4 c. £365
**Horn Piths—**
Boston, 15 t. 8 c.
**Lime—**
Anamaboe, 1 ck.
**Manganese—**
Bombay, 2½ t.
Rio de Janeiro, 8 cks.
**Magnesia—**
Rotterdam, 6 crts.
Valparaiso, 6 bxs.
**Magnesium Chloride—**
Singapore, 1 t. 1 c. £5
Rangoon, 16 cs.
**Magnesium Sulphate—**
Bombay, 250 cks.
**Manure—**
Bordeaux, 254 t. 16 c. 3 q. £1,328
Rochefort, 496 9 3 2,492
Havre, 250 6 1,233
Genoa, 128 16 3 629
**Ochre—**
Calcutta, 36 cks.
**Paint—**
Alexandria, 15 cks.
Arroyo, 3
Bathurst, 2
Beyrout, 50 kgs.
Cairo, 2
Calcutta, 2 1
Callao, 30 cs.
Cienfuegos, 12
Coronel, 24
E. London, 100
Galatz, 50
Guayaquil, 3 8 45 dms.
Harbourgrace, 5 36
Iquique, 39 cs.
Lisbon, 150
Maracaibo, 296
New Orleans, 1
Sandy Point, 22
Shanghai, 130
Sierra Leone, 3 94
Accra, 22 tins.
Bombay, 110
Candia, 2 brls. 10
Canea, 2 tcs.
Colombo, 8
Colon, 15
Ferrol, 1 cs.
Genoa, 2 5 1 30 bgs.
Half Jack, 1
Havana, 5 brls.
Hong Kong, 3
Jacmel, 24
Kingston, Jam., 5
Lagos, 75
Manaos, 215
Manilla, 26 725
New York, 2 cs.
Sangua la Grande, 4
St. Thomas, 7 30 1 cs.
**Painters' Colours—**
Bahia, 10 kgs.
Bombay, 35 cs.
New York, 190 cks. 10 brls.
Old Calabar, 1
Para, 40 dms.
Pernambuco, 5 crts. 30 kgs.
Ponce, 2 cs.
Rio de Janeiro, 3 cks.
St. John's, Nfld., 36 35
Salonica, 80
Santiago, 2 cs. 70
Syra, 8 9 brls.
Tucumar, 5
Amsterdam, 40
B. Ayres, 81
Las Palmas, 20
Libau, 40
Lisbon, 88
Marseilles, 6
Mayaquez, 3
Mazatlan, 1 cs. 1 16
Monte Video, 13 11
Oporto, 20
Panama, 5 tcs.
Paris, 30
Piræus, 1 cs. 6
Salaora, 2 dms. 3
Santander, 79
Santos, 130 100
Stockholm, 15
Trieste, 9
Tripoli, 48
Ville Real, 4
Zante, 9
**Phosphorus—**
Havana, 12 cs. £59
**Pitch—**
Valparaiso, 17¼ t.
Genoa, 2,280
**Potassium Bichromate—**
Rio de Janeiro, 7 c. 1 q. £15
**Potassium Chlorate—**
Antwerp, 3 t. £154
Boston, 7 5 c. 413
B. Ayres, 6 19 324
Monte Video, 12 27
St. Petersburg, 10 564
Copenhagen, 6 310
Gothenburg, 10 489
Rotterdam, 10 489
Hiogo, 30 1,585
New York, 15 6 398
Rouen, 1 10 83
Genoa, 10 30
**Potassium Silicate—**
Valencia, 8 t. 6 c. 1 q. £57
**Salt—**
Boston, 100 t.
Brass, 647
Buguma, 25
E. London, 26¾
Ghent, 78 1,550 sks.
Montreal, 86
Nakskov, 104
Rio de Janeiro, 5¾
Salt Pond, 50
Trinidad, 27 16 c.
Winnebah, 22½
Abonnema, 150 bgs.
Barcelona, 100 bls.
Chicago, 1,300
Iceland, 162
Newport News, 570
New York, 195
Singapore, 11
**Salt Cake—**
Philadelphia, 200 t. 5 c. £374
Hartford City, 30 8 76
**Saltpetre—**
Montreal, 12 c. 2 q. £13
Puebla, 7 t. 17 1 168
Rosario, 1 22
Piræus, 7 10 161
**Sheep Dip—**
Capetown, 12 c. £24
B. Ayres, 91 t. 1 2,190
**Size—**
Rotterdam, 9 cks.
**Soap—**
Antwerp, 400 cs.
Bombay, 500 bxs. 117
Boston, 1
Capetown, 1,235
Havre, 300 120
Las Palmas, 540
Malta, 20
Montreal, 314
New Orleans, 20
,, York, 600 38
Penang, 100
Pt. Elizabeth, 150
Rangoon, 1
St. John's, Nfld., 380 1
Shanghai, 2,028
Singapore, 1,600 20
Valparaiso, 1 1
Accra, 100
Addah, 20
Algoa Bay, 550
Annot Bay, 25
Antigua, 100
Bakana, 150
Barbadoes, 750
Belize, 550
Calcutta, 34 750 bdls.
Callao, 1
Constantinople, 2
Genoa, 40
Ghent, 60
Gibraltar, 536
Kurrachee, 10
Manaos, 1,300
Mossel Bay, 550
Old Calabar, 300
Opobo, 2,820
Para, 100
Rio de Janeiro, 2
Trinidad, 700
Vera Cruz, 1
Winnebah, 50
**Soda—**
Barcelona, 4 cks.
**Soda Alkali—**
Sydney, 30 brls.
**Soda Ash—**
Baltimore, 802 cks. 900 bgs.
Boston, 282 600
Brisbane, 165
Calcutta, 7
Halifax, 2
Havana, 3
Montreal, 25 80
New York, 941 1,300 39
Oporto, 28
Portland, 30
Rio de Janeiro, 150
Samrona, 22
San Francisco, 131
Sydney, 163
Syra, 20 100
Varna, 60
Amsterdam, 18
Corfu, 100
Kobe, 136
Philadelphia, 744 1,320
Santos, 60
Vera Cruz, 22
**Soda Crystals—**
Boston, 280 brls.
Halifax, 140 50 kgs.
Kurrachee, 50
Montreal, 20 159
New York, 420
Ontario, 25
Philadelphia, 167 374 480
Capetown, 12
Portland, 200
**Sodium Biborate—**
New York, 15 c.
Montreal, 4 t. 3 3 q.
Yokohama, 2 19 2
**Sodium Bicarbonate—**
Ancona, 10 cks.
Antwerp, 10 kgs.
Barcelona, 275
Bilbao, 201
Brisbane, 60
Calcutta, 1,000
Carthagena, 25
Charlottetown, 50
Genoa, 8
Ghent, 10
Gijon, 20
Halifax, 276
Havre, 117
Montreal, 150
Newcastle, N.S.W., 40 kgs.
Odessa, 300 kgs.
Portland, 350 20 cks.
Rotterdam, 108
St. John's, Nfld., 20
San Francisco, 30
Smyrna, 20
Sourabaya, 6
Sydney, 100
Trieste, 40
Amsterdam, 7
**Sodium Carbonate—**
Boston, 252 brls.
New York, 112
**Sodium Chlorate—**
Hamburg, 40 kgs.
**Sodium Hyposulphite—**
Montreal, 100 kgs.
**Sodium Oxide—**
Hamburg, 3 cs.
**Sodium Silicate—**
Malta, 30 cks.
Oporto, 6
Para, 10
Barcelona, 100 brls.
Valencia, 20
**Sodium Sulphate—**
Bombay, 35 cks.
Colombo, 2 dms.
**Spent Oxide—**
Hamburg, 51 t. 8 c. £
**Sulphur—**
Montreal, 15 c.
Ghent, 5 t. 2
Boston, 150 6
Puebla, 4 14 1 q.
Vera Cruz, 4
Rouen, 6

**Tallow**—
C. C. Castle, 4 cs.
Alexandria, 45 brls.
Carril, 2 cks.
Rio de Janeiro, 1
**Tar**—
Galatz, 25 brls.
Harbourgrace, 42
Rio de Janeiro, 25
**Varnish**—
New York, 2 cs.
**White Lead**—
Calcutta, 80 kgs.
Algoa Bay, 2 tcs.
Bahia, 50
**Zinc Chloride**—
Bombay, 18 c. £16
**Zinc Oxide**—
Antwerp, 11 t. 10 c. 3 q. £128

## HULL.

*Week ending September 10th.*

**Aluminium**—
Rotterdam, 2 cs.
**Benzol**—
Rotterdam, 24 cks.
**Bleaching Powder**—
Stettin, 64 cks.
**Caustic Soda**—
Abo, 1 ck.
Bergen, 4 dms.
Danzig, 190
Helsingfors, 105
Stettin, 17
Wyburg, 20
Wasa, 2 19
**Chemicals** (*otherwise undescribed*)
Antwerp, 29 cs. 1 ck.
Amsterdam, 20 btls.
Abo, 13
Bergen, 2
Bremen, 18
Christiania, 2 cs. 462 slbs.
Copenhagen, 4 30 pks.
Danzig, 40 10
Gothenburg, 30 14
Hamburg, 132 240 22 20 kgs.
Helsingfors, 10
Konigsberg, 4
New York, 50 cs.
Rotterdam, 92
St. Petersburg, 4 50
Uleaborg, 1
Wasa, 16
**Cottonseed Oil**—
Antwerp, 834 c.
Bergen, 17
Bremen, 136
Danzig, 20
Flushing, 133
Gothenburg, 150
Hamburg, 1,372
Konigsberg, 51
Rotterdam, 1,345
Stettin, 44
**Creosote**—
St. Petersburg, 110 cks.
**Dyestuffs** (*otherwise undescribed*)
Christiania, 4 cks. 112 bls.
New York, 25
St. Petersburg, 31
**Lime**—
Christiania, 2 cks.
**Linseed Oil**—
Alexandria, 146 c.
Bergen, 87
Christiania, 642
Copenhagen, 27
Drontheim, 121
Hamburg, 10
Helsingfors, 391
Rotterdam, 34
Stavanger, 21
Uleaborg, 4
Wasa, 145
**Manganese**—
Gothenburg, 21 cks.
**Manure**—
Dunkirk, 306 bgs.
Rouen, 88
**Mineral White**—
Amsterdam, 100 bls.
**Naphtha**—
Antwerp, 15 cks.
**Naphthalene**—
Riga, 354 bls.
**Ochre**—
Copenhagen, 10 cks.
**Painters' Colours**—
Antwerp, 6 cs 35 cks. 157 dms.
Amsterdam, 1
Abo, 3 9
Alexandria, 142 pkgs.
Bergen, 8
Christiansand, 30 dms.
Christiania, 345
Copenhagen, 6
Danzig, 2 11
Drontheim, 10 15
Dunkirk, 6
Ghent, 6
Gothenburg, 6 50 1 pkg.
Hamburg, 24 3 7 3 pks.
Konigsberg, 3
New York, 460 40
Rotterdam, 3 5
Rouen, 20
Stockholm, 1
Stettin, 1
Wasa, 9 4 6
**Pitch**—
Helsingfors, 149 cks.
**Size**—
Flushing, 13 cks.
**Soap**—
Christiania, 1 cs.
**Superphosphate**—
Norre Sundby, 2,291 bgs.
**Tallow**—
Flushing, 13 cks.
**Tar**—
Abo, 3 cks.
Bergen, 5
Drontheim, 5
Helsingfors, 50
Wasa, 1
**Varnish**—
Antwerp, 1 cs.
Bergen, 1
Gothenburg, 9 1 dm.
Hamburg, 5 cks.
Helsingfors, 3
Rotterdam, 1 1
Wasa, 1

## GLASGOW.

*Week ending September 15th.*

**Acetate of Lime**—
Dantzig, 30½ t. £290
**Acid**—
Bombay, 2 t. 4½ c. £440
**Ammonium Sulphate**—
Demerara, 168 t. 17¾ c. £1,618
Nantes, 15 4 150
Charente, 186 14 1,867
Bordeaux, 50 10½ 550
**Asbestos**—
Shanghai, 3½ c. 27 lbs. £22
**Bleaching Powder**—
Brisbane, 82 t. 8½ c. £747
Valparaiso, 3 31
**Chemicals** (*otherwise undescribed*)
Rangoon, 2 t. 15¾ c. £32
**Chloride of Lime**—
Boston, 9 t. 18 c. £81
**Linseed Oil**—
Shanghai, 1 t. 4½ c. £25
Valparaiso, 8 11¾ 211
Malta, 1 18½ £38. 12s.
**Litharge**—
St. John's, N.F., 8 t. 18½ c. £128
**Madder**—
Boston, 3 t. 2½ c. £100
**Magnesium Sulphate**—
Sydney, 11 t. 1 c. £67
**Paint**—
Rangoon, 1 t. 12 c. £25
Calcutta, 1 7¼ 53
Straits, 10 11 176
Shanghai, 1 15½ 31
Trinidad, 10¼ 36
Sydney, 1 13 £41. 8s.
Valparaiso, 38 6¾ 752
**Painters' Colours**—
Rangoon, 8 t. 11¼ c. £108
Hong Kong, 5 14 80
Malta, 1 15¼ £35. 16s.
**Paraffin Wax**—
Japan, 20 t. 9¼ c. £872
Nantes, 19¼ 30
**Pitch**—
Bombay, 37 t. 7 c. £91
Valparaiso, 158 13¾ 203
Bordeaux, 1,011 9 1,350
Amsterdam, 126 £113. 8s.
**Potassium Bichromate**—
Boston, 10 t. 9¾ c. £392
**Pyrogallic Acid**—
Quebec, 2½ c. £20
**Silicate**—
Quebec, 5 t. 18¼ c. £118
**Soap**—
Christiania, 1 cs. £5
Rangoon, 1 t. 14¾ c. £21. 15s.
Demerara, 25 7 381
Valparaiso, 1
**Stearine**—
New York, 42 t. £63
**Sulphur**—
Demerara, 3 t. 10¾ c. £24
**Sulphuric Acid**—
Rangoon, 37 t. 3 c. £337
**Tallow**—
Rotterdam, 7 t. 1½ c. £239
**Tar**—
Dantzig, 2,300 brls. £1,162
Bombay, 53½ t. 130
Calcutta, 13 10 c. 38
**Tar and Pitch**—
Madras, 26 t. 6 c. £48
**White Lead**—
Brisbane, 3 t. 4¼ c. £62
Bombay, 2 10 35

## TYNE.

*Week ending September 10th.*

**Acid**—
New York, 4 t. 2 c.
**Alkali**—
New York, 50 t. 11 c.
Hamburg, 5 4
Antwerp, 2 13
Horsens, 1 14
Riga, 3 6
St. Petersburg, 29 2
Amsterdam, 39 16
**Alum**—
San Francisco, 20 t.
**Alumino-Ferric**—
San Francisco, 5 t.
**Alumina Sulphate**—
New York, 10 t.
**Ammonium Alkali**—
Bergen, 1 t.
**Ammonium Carbonate**—
Constantinople, 5 t.
**Ammonium Chloride**—
Odessa, 10 t.
Constantinople, 6 19 c.
**Antimony**—
New York, 50 t.
Hamburg, 5
**Barium Binoxide**—
New York, 2 t.
**Barium Nitrate**—
San Francisco, 10 c.
**Barytes**—
New York, 50 t. 10 c.
Hamburg, 143 11
St. Petersburg, 19 18
**Bleaching Powder**—
Hamburg, 17 t. 3 c.
Antwerp, 43 19
Christiania, 32 4
Stockholm, 5 11
Gefle, 1 8
Copenhagen, 24 17
Aarhuus, 2 8
Odense, 1 3
Riga, 30 5
Rotterdam, 35 2
S. Petersburg, 296 6
Trondjheim, 10 5
Newfairwater, 20 9
Amsterdam, 7 5
San Francisco, 60 10
Gothenburg, 20 1
**Borax**—
Constantinople, 2 t.
**Caustic Soda**—
New York, 145 t. 1 c.
Hamburg, 2 18
Christiania, 10 4
Stockholm, 7 4
Copenhagen, 1 9
Amsterdam, 13 3
Odessa, 78 6
Constantinople, 14 10
San Francisco, 159 11
Gothenburg, 4 18
**China Clay**—
New York, 10 t.
**Colours**—
New York, 1 t. 2 c.
Naples, 1 6
**Copperas**—
Trondhjeim, 10 t. 4 c.
San Francisco, 45 5
Gothenburg, 10
**Litharge**—
New York, 3 t.
Hamburg, 1 9 c.
Stockholm, 2 11
Oporto, 2 16
**Magnesia**—
New York, 1 t. 2 c.
Hamburg, 12
Odense, 1
Leghorn, 3
Odessa, 3
Smyrna, 8
Constantinople, 3
**Naphthalene**—
Riga, 25 t. 12 c.
**Ochre**—
Christiania, 9 t. 4 c.
**Paint**—
Antwerp, 1 t. 3 c.
Arendal, 6
Rotterdam, 6
**Soda**—
Aahauus, 4 t.
Drontheim, 54 1 c.
Gothenburg, 24 18
**Soda Ash**—
Hamburg, 9 t. 19 c.
Venice, 20 2
Odessa, 7 18
San Francisco, 150
Gothenburg, 70 10
**Soda Crystals**—
Rotterdam, 2 t. 17 c.
**Sodium Hyposulphite**—
Stockholm, 7 c.
San Francisco, 25 t.
**Sodium Sulphate**—
Odense, 1 t. 6 c.
**Strontium Nitrate**—
San Francisco, 25 cks.
**Sulphur**—
Antwerp, 22 t. 10 c.
Christiania, 6
Rotterdam, 210 1
Gothenburg, 26
**Superphosphate**—
Aarhuus, 172 t. 6 c.
Riga, 200 8
**Tallow**—
Hamburg, 1 t. 16 c.
**Tar**—
Drontheim, 5 t.
**White Lead**—
Stockholm, 2 t. 1 c.

## GOOLE.

*Week ending August 31st.*

**Chemicals** (*otherwise undescribed.*)
Hamburg, 5 cks.
Rotterdam, 71
**Dyestuffs** (*otherwise undescribed*)
Boulogne, 1 ck. 2 pkgs.
Ghent, 1
Hamburg, 2
**Manure**—
Boulogne, 129 bgs.
Bruges, 210
Dunkirk, 121
**Pitch**—
Antwerp, 70 t.

## GRIMSBY.

*Week ending September 3rd.*

**Chemicals** (*otherwise undscribed*)
Esbjerg, 3 cks.
Hamburg, 36 50 cs.
Malmo, 20
Rotterdam, 10
**Coal Products** (*otherwise undesc'd.*)
Dieppe, 124 cks.
**Dyestuffs** (*otherwise undescribed*)
Dieppe, 1 cs. 1 ck.
**Manure**—
Esbjerg, 3,500 bgs.

# PRICES CURRENT.

WEDNESDAY, Sept. 21st, 189

PREPARED BY HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

*The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may va*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids :—** | | | | |
| Acetic, 25 °/. and 40 °/. | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | | 50/- | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 °/.) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ( ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 15 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 3 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 10 | 1 | 3 |
| ,, ,, (grey) Hull | ,, | 10 | 3 | 9 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 9 | 17 | 6 |
| ,, Liquor, 7 % | ,, | 3 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes :—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8¾ |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 9½ |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 7 |
| ,, 50/90 ,, | ,, | 0 | 1 | 3 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 6¼ |
| ,, (crude 60°) | per gallon | 0 | 1 | 6 |
| Creosote (ordinary) | ,, | 0 | 0 | 1½ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 0 | 11 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 43 | 15 | 0 |
| ,, Sulphate | ,, | 15 | 5 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 12 | 6 |
| ,, Litharge Flake (ex ship) | ,, | 14 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, (brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |

| | | £ | s. |
|---|---|---|---|
| Lime, Acetate (brown) | per ton | 6 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 |
| ,, Chloride (ex ship) | per ton | 2 | 7 |
| ,, Carbonate | per cwt. | 1 | 17 |
| ,, Hydrate | per ton. | 17 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 |
| Manganese, Sulphate | ,, | 17 | 15 |
| ,, Borate | per cwt. | 2 | 12 |
| ,, Ore, 70 % | per ton | 4 | 5 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 |
| Naphtha (Wood), Solvent | ,, | 0 | 4 |
| ,, ,, Miscible, 60° O.P. | ,, | 0 | 3 |
| **Oils :—** | | | |
| Cotton-seed | per ton | 18 | 15 |
| Linseed | ,, | 20 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 |
| Petroleum, Russian | per gallon | 0 | 0 |
| ,, American | ,, | 0 | 0 |
| Potassium (metal) | per oz. | 0 | 3 |
| ,, Bichromate | nett per lb. | 0 | 0 |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 |
| ,, Chlorate | per lb. | 0 | 0 |
| ,, Cyanide, 98% | ,, | 0 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 |
| ,, Permanganate | per cwt. | 3 | 12 |
| ,, Prussiate Yellow | per lb. | 0 | 0 |
| ,, Sulphate, 90 % (ex ship) | per ton | 0 | 15 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 |
| Silver (metal) | per oz. | 0 | 3 |
| ,, Nitrate | ,, | 0 | 2 |
| Sodium (metal) | per lb. | 0 | 3 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 5 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 7 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 6 | 5 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 |
| ,, Acetate (ex-ship) | ,, | 18 | 10 |
| ,, Arseniate, 45 % | ,, | 11 | 15 |
| ,, Chlorate | per lb. | 0 | 0 |
| ,, Borate (Borax) | net, per ton. | 29 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | net pr. ton (10 ton lots) | 11 | 15 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, | 11 | 5 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, | 10 | 5 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, | 9 | 2 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, | 8 | 17 |
| ,, Bicarbonate | ,, | 6 | 12 |
| ,, Hyposulphite | ,, | 7 | 15 |
| ,, Manganate, 30% | ,, | 16 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 |
| ,, Nitrite, 98 % | per ton | 30 | 0 |
| ,, Phosphate | ,, | 15 | 10 |
| ,, Prussiate | per lb. | 0 | 0 |
| ,, Silicate (glass) | per ton | 5 | 7 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 16 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 |
| ,, Sulphide | ,, | 7 | 15 |
| ,, Sulphite | ,, | 6 | 12 |
| Strontium Hydrate, 100% | ,, | 8 | 10 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 |
| ,, Barium, 95 % | ,, | 0 | 0 |
| ,, Potassium | ,, | 0 | 0 |
| Sulphur (Flowers) | per ton. | 8 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 |
| ,, Brimstone : Best Quality (nominal) | ,, | 5 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 |
| Tallow | ,, | 26 | 5 |
| Tin (English Ingots) | ,, | 94 | 0 |
| ,, Crystals | per lb. | 0 | 0 |
| Zinc (Spelter) | per ton | 18 | 5 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 |

THE

# HEMICAL TRADE JOURNAL

AND

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## Notices.

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ons for the Editor, if intended for insertion in the issue, should reach the office not later than **Tuesday**

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rts, and correspondence on all matters of interest to the allied industries, home and foreign, are solicited, should condense their matter as much as possible, le only of the paper, and in all cases give their names not necessarily for publication. Sketches should be sheets.

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## THE BEGINNING OF THE END.

FOR now more than thirty years the disposal of sewage and prevention of river pollution are two questions which have been thrusting themselves upon the notice of sanitarians; not always with the same persistency which has been experienced during the last three years, but still with incessant importunity. The little drop has been falling on the stone for a long while, till at last it seems to have succeeded in wearing a hole sufficiently deep to make a splash in, and so make its influence more widely felt.

So far those on whom the splashings should have fallen have been able, so to speak, to dodge the drops, and thus put off the evil day; but a gentle sprinkling over a considerable area makes itself felt much more readily than the impact of a solitary drop in one locality only, and we have at last reached the time when propositions having ripened into action, and the attack has been commenced upon what is a very strong hold of pollution, namely, the two dirtiest and hardest worked rivers in the United Kingdom, if not in the universe.

The determined nature of this attack, strengthened as it is by the co-operation of the polluters and their antitypes, and the success with which it is being attended, the proceedings of the Rivers Mersey and Irwell Joint Committee, which are from time to time chronicled in these columns, sufficiently testify, while we have before us the report of the Ribble Watershed Joint Committee, which shows that the attack is being carried into other quarters with equal energy.

In the majority of cases the action of the Committee has been stayed on account of satisfactory steps being taken by the several local boards to dispose of their sewage. In all these cases schemes are in a state of active preparation, while in some, negotiations are being entered into for the construction of the works for carrying out the schemes which have been adopted.

With regard to the our local authorities who have failed to give notice within the time allotted, of the lines they intend to follow, so as to clear themselves from the charge of pollution; in each case steps are being taken to make the necessary preparations for proceeding on the course which the Committee gave notice they should pursue. The report also contains a statement of the chief inspector's investigations upon an important brook in the watershed. Seeing this stream starts in what is virtually a state of purity, it affords an excellent opportunity of observing the influence of the pollution which it suffers, which consists chiefly of partially treated waste waters from print works, untreated waste from bleach works, and ultimately sewage.

To carefully note the deterioration of the water under these circumstances should be most instructive and useful to those interested in the matter, but we were much disappointed to find the results expressed in a fashion which greatly detract from their utility for the purposes of com-

parison. The expression of results in terms of organic, carbon, and nitrogen is for the purpose in view by no means satisfactory. The method by which such figures must necessarily be obtained is one which only admits of successful work under special conditions which are exceptionally exacting in their requirements, and even then lose much value if the theory of previous sewage contamination is not accepted.

The advantages attending the use of the ammonia process of water analysis, especially for the purposes of a body like this Committee, have been proved by experience, and are now admitted in almost every quarter.

The necessity of adopting a uniform system and of making the analyses in such a way that there may be something approaching conformity in the results obtained by the Committee and outsiders is of the highest importance, and is a matter which will require settling at an early date. It still remains to be seen what method will be adopted by the Mersey and Irwell Joint Committee, but unless the methods adopted by the two Committees be brought into line soon there is a danger of much work, which would otherwise have been of great value, being rendered fruitless and void.

Although the watersheds of Lancashire, Cheshire, and Yorkshire are at present the chief centres of activity in the matter of river pollution and sanitary reform in regard to the water supply, still much attention is being given to the latter question in other quarters as well. This in a certain measure may be due to the fact that we have only just escaped from a return of the cholera epidemic; but undoubtedly apart from this more inquiry has lately been made into the quality of the water supply, particularly in country places where it was customary to assume that the supply was all that could be desired.

Dr. Thresh has recently investigated the water supply of a small village near Chelmsford, and his results show how important it is that such matters should receive more attention, especially in the face of recent events. It certainly does not sound encouraging to learn that in a village of 2,462 inhabitants only thirteen out of fifty samples from different sources of supply were fit to drink. The remainder showed much contamination, while one was nothing less than diluted sewage. As there are several springs in the neighbourhood giving a water of excellent quality, the necessity of utilizing the water for the public supply is being strenuously urged.

It is evident, therefore, that at length we have awoke to the fact that something more than talking must be done, and, what is more, that something is being done.

It will, we trust, be found that other authorities will in the near future take advantage of the opening made by the Joint Rivers Committees, to insert the thin end of their wedges, so that from now we shall gradually drive out of existence those evils which have blocked the way to further sanitary reform.

In conclusion there is one point which we noted in the report referred to at the outset, which to say the least is satisfactory. Active as many of the local authorities are, from all accounts the manufacturers in the district are likewise by no means behindhand, and are displaying equal spirit and energy, which must be witnessed with pleasure by both sides.

---

Abolition of the Reaumur Scale.—The Ministry of Worship, Public Instruction, and Medical Affairs has issued orders for the Centigrade thermometer to be exclusively used throughout Germany from the 1st of January next, instead of the Réaumur thermometer as heretofore.

## THE SMOKE CLAUSES OF THE PUBLIC HEAL ACT 1875.

At the recent Congress of the Sanitary Institute held at Portsm Mr. H. L. Terry read a paper upon the above named subje the course of which he said:—The state of the atmosphere in our cities is a subject that is fraught with interest to the sanitary refor of this country, consequently I have little hesitation in bringing ward the smoke question, although I am not sanguine that the vie hold will commend themselves to the majority of my hearers. seems to be generally agreed that smoke is a nuisance, and that smoke in particular is the incarnation of evil Now, from a hyg point of view, I do not feel at all sure that the case against black sm has been made out. The legislature certainly concerns itself only black smoke as evolved from factories and workshops, but there growing conviction amongst those who have gone into the matter the grey smoke of the household grate is really a more deleter product. Without going deep into the chemistry of the subjec may be stated that while the high temperature of the boiler fire ca the hydro-carbons of the coal to dissociate producing hydrogen free carbon, the lower temperature prevailing in the household gr especially where the fire is made up to last a long time, produc smoke consisting largely of oily hydro-carbons. These latter naturally more injurious to organisms than is free carbon, whic recognised as a most powerful deodorant and disinfectant; in fact quite probable that black smoke plays an important part in economy of town life in this respect Apart, however, from its bla ness, all smoke contains sulphurous acid, and it is to this body that destructive action of town smoke on vegetation is really due. C sidering the present state of our knowledge on the subject, the leg lature very wisely omits any reference to this sulphurous acid, agent which has destroyed the vegetation in such large districts Lancashire and Southern Spain Figures have frequently been giv by writers on the smoke question showing the amount of oil of vitr poured into the air of our isles from burning coal. The yearly p duction of coal in the United Kingdom, allowing for exports a gasmaking, would on the basis of 1 per cent of sulphur, a l estimate, yield on combustion over 4,000,000 tons of sulphuric ac Although such figures are liable to give the general reader an exaggerat idea of the evil owing to the extreme dilution in which most of t acid is formed, yet they serve to show that the evil is of so magnitude. I have gone into these details about smoke to sho that any legislation which only deals with black smoke can have but ve small results. And now for the point I wish to draw special attention Supposing, for the sake of argument, that black smoke is a great e and worthy of suppression by urban and sanitary authorities, I subm that these latter should be careful how in their zeal to purify atmosphere they so harass manufacturers in their localities as to ca them to take wings and fly away to countries where such restrictio are not enforced. To take the case of chemical manufacturers, a cl of men who are generally credited by the public as the source of atmospheric pollution in the vicinity of their works Without goi into details as to names or places, I may say that the authorities of certain town have recently seen fit to institute proceedings agai various chemical manufacturers under the smoke clauses of the Pub Health Act, 1875 In their defence the chemical manufacturers cla exemption under the saving clause which reads as follows. . . . "The Court shall hold that no nuisance is created within the meani of this Act, if it is satisfied that such fire-place or furnace is constructe in such manner as to consume as far as practicable, having regard the nature of the manufacture or trade, all smoke arising therefro and that such fire-place or furnace has been carefully attended to by t person having charge thereof."

They feel assured that it was for such cases as theirs that the legi lature admitted the saving clause. This, however, has been ru against them on appeal. Now to my mind this clause would app specially to chemical works where operations involving intermitte firing, the gradual heating-up of retorts and kilns, etc, etc., are nece sarily productive of black smoke. It is one thing to fire a boiler f the supply of steam to a steady running engine, and another to fire when steam is required for chemical purposes, and when the boil pressure may fall 20 pounds in a minute or two. It would therefo seem that cotton mills and chemical works should not be classed in th same category. Supposing, however, that the spirit of the saving clau were admitted as being applicable to chemical works, this would nece sitate the supplanting of the smoke inspector as found at the prese time by a chemical engineer, or other person competent to express a opinion on the terms, "as far as is practicable" or "having regard the nature of the process." The inspector of to-day is certainly not qualified, and some dissatisfaction has been expressed by manufacture who have come under his notice, as in such cases as the colour of smo "personal error," is an important factor. In the case of a smo prosecution, attention should be paid to the state of the weather.

ispector and had a grudge against a certain chimney—I moment suggest that such cases really occur—I know lay I should choose for my inspection. The state of the doubt be considered by the qualified inspector of the foregoing I do not wish to be understood as approving mission of black smoke where such can be easily pre- smoke problem, as the direct cause of the injurious fogs one worthy the attention of our foremost scientific men, butions to the literature of the subject from the pens of hould be invited. The recent reference to the matter f Lords, the trial of anthracite for house purposes, and moke consuming appliances by Mr. A. E. Fletcher's all indications of the attention the subject is receiving. ing appliances arise like the flies in summer, but the yet on the market that will prevent a careless fireman noke. To conclude, our local authorities—presuming utions are instituted entirely from a Benthamite point l be lenient in respect to chemical and allied works, these form the means of livelihood to the working vicinity. We must not forget that our large towns in their preeminence to their manufactures, and it would impose vexatious restrictions, especially when the obtained is so problematical. No doubt it would be r if our town atmospheres could equal the air of Grindel- more than possible that we may have to decide between remacy and salubrity. Can we support our increasing ure air?

ing any formal resolution. I would submit that uthorities should acknowledge the special applicability ause to section 91, sub-section 7, Public Health Act al works.

where the smoke clauses are enforced the inspector mical engineer or other person competent to carry out Act.

sion following the paper Dr. BEACH stated that the e often arose from the chimneys of hotels which were ic principles.

maintained that they wanted to discover the limit up e was not injurious, and they should then prevent l that limit passing into the atmosphere.

## OLIVE OIL FOR ADULTERANTS.

which is largely used for alimentary, industrial and purposes, on account of its higher price tempts the ern tradesmen. This is a serious evil, which contributes lit, occasion distrust, demoralizes commerce, raises up wsuits which are profitable only to lawyers, doing great nercial houses, which, in spite of their circumspection, or later victims of these adulterations. And this decep- hant falls on the purchaser, who in good faith believes ure product, paying for it frequently a very high price. efore, impossible to stop completely the evil, which is ng and menaces the true industry and the honest ve oil, it is better to confide in the means that science posal to detect the adulteration of the oil and so dis- st practices.

Paparelli speaking on this subject says, happily, olive is rather limited; olive oil cannot be made artificially her oils, which have a certain analogy with it and are an be partially substituted for it. Sometimes, but able substance is mixed with oils dangerous to health: adulteration is made with oils which, on account of are quite different from olive oil, the eye and nose can them easily. Of course, people who are not accustomed ng olive oil might be deceived not only in such a case, lso accept as olive oil that made entirely from one or

even when adulteration is made with good oils from lisgusts the taste and stomachs of persons accustomed true olive oil, and at the same time the conservation lly compromised. Other bad results may be caused by oils are used for industrial purposes.

e find many kinds of olive oils, the tastes and qualities l, within certain limits, on many circumstances; for riety of olive from which the oil was obtained, the at which the olives were picked, the methods in use , etc., all of which are natural differences.

ngle substances, but are mixtures of several substances ure, and the process of elaboration of which is in large part unknown. So we must not be astonished if in the analytical test the reactions are not always clear for the same oil, although given as characteristic and sure.

Olive oil is principally formed of a mixture of glycerides, palmitin, stearin, olein; and we may consider that the first two are in the proportion of 28 per cent., and the third 72 per cent.

The oils that are most frequently added to olive oil are cottonseed oil, sesame oil, rapeseed oil and peanut oil. According to Secretary Lelong, other substances are used for the same purpose, but of them we will speak at a future time, when we shall have occasion to study such adulterations. Therefore, when we receive an olive oil said to be pure, we shall have to solve the following questions:

Is it a pure olive oil? Is it an olive oil adulterated with cottonseed oil! Or is it an olive oil adulterated with oils from other seeds?

In order to answer such questions, the examination of both the physical properties and the chemical reactions of the suspected oil is necessary, and if in some cases one or two tests only may be sufficient to enable us to form an opinion, in most cases we must submit the oil to all the tests recognised at present as characteristic and sure, and only from the whole of the results obtained can we decide upon the purity of the oil.

### TESTS FOR THE ADULTERANTS.

First the physical characters of each sample must be examined—viz, colour, odour and taste. The two latter always give useful indications regarding the purity of an olive oil, but they can only be appreciated by an expert. The specific gravity is also determined, although that of most seed oils does not differ from that of olive oil. These oils of which the specific gravity is quite different are generally not used for adulteration.

The point of fusion and of solidification of the free fatty acids, the caloric degree, the electric conductivity of the oil, may be taken into account in the examination, but all these physical properties differ so little in the different oils most used for adulteration, that although valuable in distinguishing one from the other, they are useless when the oils are mixed.

Therefore, we will give special attention to the chemical reactions now known as characteristic and quite sure for most cases.

### IODINE ABSORPTION.

The iodine number is the quantity of iodine absorbed cold by a hundred parts of oil. About 0 03 grams. of oil are dissolved in 10 c.c. of pure chloroform and mixed with 22 c.c. of an alcholic solution of iodine and chloride of mercury (25 grams. of iodine and 30 grams. of chloride of mercury in 1,000 c.c. of pure alcohol at 95 per cent.) The liquid, being in bottles well closed, is kept for about two hours in a cool and dark place. In the same conditions are kept another 20 c.c. of the iodine solution with 10 c.c of chloroform, and the strength of it is determined by a solution of hyposulphite of soda. The difference between the quantity of hyposulphite employed to destroy the colour of the iodine solution which has been in contact with the oil, and that needed to destroy the colour of an equal quantity of iodine solution unmixed with oil, represents the iodine absorption of the oil.

According to different authors the ratio of iodine absorption by olive oil may vary from 79 to 88. while most chemists do not admit more than 84·5 as a standard, and consider every oil as adulterated which passes the limit. But this test cannot be altogether relied upon, because higher iodine absorption has been found for pure olive oils. The causes which produce this variability, so far as studied, are the following:

First—The more mature the olives are, the higher is the iodine absorption.

Second—Old and rancid oil has generally a slightly lower number.

Third—The method of oil-making has also its influence; oil from the pulp only shows slightly less iodine absorption than that obtained from grinding pulp and pits together; oils extracted by chemical solvents have a lower iodine absorption than the same obtained by pressing; oils obtained from pits always show a higher iodine absorption than those extracted from the fruit.

Fourth—It seems that the largest influence is due to the variety of olive from which the oil is made; in fact, some varities show a very high number. On the whole, the conclusion is that high iodine absorption, even up to 88, is not always indicative of the presence of seed oils, but may be on account of the quality of the oil itself. Therefore, to be able to judge if an olive oil might be or might not be mixed with seed oils, we must take into consideration the other chemical tests, which give better results.

### COTTONSEED OIL.

For detecting the presence of cotton seed oil in olive oil, and also in several other seed oils, the test known as Bechi's reaction is recommended. For the performance of this test an alcoholic solution of nitrate of silver is made in the following way:

| | |
|---|---|
| Nitrate of silver | 1 grm. |
| Alcohol at 80 per cent | 200 cubic centimetres. |
| Ethylic ether | 40 c.c. |
| Nitric acid | 0·1 grm. |

Another solution is made of:

| | |
|---|---|
| Amylic alcohol (fused oil) | 100 c.c. |
| Pure colza oil (rapeseed oil) | 15 ,, |

The reaction is made in the following way: To 10 c.c. of the oil to be tested add 1 c.c. of the silver reagent, and 10 c.c. of solution of colza oil in amylic alcohol; stir briskly and divide the mixture so obtained into two equal parts; warm one-half for one-quarter of an hour at the boiling point of water, and compare with the other half to see if there has been any change of colour. In case of any addition of cottonseed oil, a dark brownish-red colouration will be obtained. According to the author, the same result may be obtained, without using colza oil, but he employs it in order to obtain always a uniform colouration.

### OTHER TESTS FOR COTTONSEED OIL.

*Hauchecorne's Reaction.*—Stir together briskly six grams. of oil with two grams. of pure nitric acid, and warm the mixture for twenty minutes in a bath of boiling water. Pure olive oil treated in this manner becomes somewhat pale, and if it is a dark coloured oil, assumes the proper yellow colour of fine olive oils, while it becomes yellowish-orange or reddish-brown if it contains any seed oils. In order to obtain good results it is necessary to operate always under the same conditions.

*Brulle's Reaction.*—To 10 c.c. of oil add 0·1 gram. of dried albumen in fine powder, and 20 c.c. of nitric acid. Warm all carefully until the acid begins to boil, then stir well, continuing to warm until the albumen is completely dissolved. At this point the genuine olive oil becomes almost colourless, and after cooling it becomes more or less turbid, but of a fine yellowish-straw colour, which it retains for a long time. After twenty-four hours it becomes completely solid and remains of the same colour. On the contrary, when seed oils are present, the colouration is from yellowish-orange to reddish-brown at the time of the dissolution of the albumen by heating, and generally they do not solidify.

*Heydenreich's Reaction*—In a porcelain capsule, with a flat bottom, put enough concentrated and pure sulphuric acid to make a surface as large as a shilling, and on it let fall five or six drops of the oil to be tested. Observe carefully the colouration produced during three minutes at the point of contact of the oil with the acid. This colouration if pure olive oil should be yellowish or greenish-yellow, and in seed oils from yellowish-orange to reddish-brown. This reaction in some cases might produce an error if not carefully practised; and it is also necessary not to rely on this test alone, but to try others.

### SESAME OIL.

A very characteristic test for this oil, when used as an adulterant, is Baudouin's reaction, which is based on the property which sesame oil possesses of turning crimson a solution of sugar in concentrated hydrochloric acid. The reagent is prepared by dissolving 1 gram. of sugar in 100 c.c. of hydrochloric acid. To one volume of this solution add two volumes of the oil to be tested, and stir briskly for some time. After some minutes of settling, the aqueous liquid which separates is uncoloured if no sesame oil is present, but in contrary case is coloured crimson, more or less dark.

### RAPESEED OIL.

Colza, or rapeseed oil, like other oils of the crucifiers, contains sulphur; therefore, when carefully treated with silver nitrate, they produce a black colouration due to the formation of sulphide of silver, by which test the presence of this oil may be detected.

## PEROXIDE OF SODIUM.

By M. Prud'homme.

Until recently peroxide of sodium was only known as a laboratory product. The peroxides of potassium and sodium were known to Gay, Lussac, and Thinard, in 1810, and were obtained by them in small quantities. These chemists gave them the formulæ $KO_3$ and $Na_2O_3$ (old notation). The study of these substances was again entered upon in 1862 by Vernon Harcourt, whose analyses led him to the formulæ $K_2O_4$ and $Na_2O_2$, instead of $K_2O_3$ and $Na_4O_3$. He prepared them by heating the metals in an excess of oxygen in a silver vessel, and $Na_2O_2$ is now made on the commercial scale, we believe, by the Aluminium Co., Limited, Oldbury.

### ITS PREPARATION.

To avoid the fusion of the product it is well to commence the oxidation in a current of dry air, and then to replace this by pure oxygen. Peroxide is also formed when potassium hydrate is kept fused in a silver crucible in contact with the air.

In 1886, H. Carrington Bolton devised a simple method for showing the formation of these peroxides as a lecture experiment, by dropping bits of potassium or sodium into fused nitrate of potassium or sodium. The metal burns with a bright light and the mass becomes coloured a deep red in the case of potassium becoming yellow on cooling, and yellowish red with sodium becoming colourless on cooling. Finally, in 1876, Fairley obtained the sodium compound crystallized with one molecule of water by adding peroxide of hydrogen to an excess of caustic soda solution of 20 per cent. and then pouring into alcohol.

The firm of E de Haën has just introduced, at the price of 5 francs per kilo., under the name of sodium superoxide, a substance which is identical with sodium peroxide. The German patent of the 3rd Feb., 1892, not having yet been published, we are not aware of the industrial method by which the substance is prepared. It is, however, probable that it is obtained from metallic sodium, for it seems to enclose particles of this metal, which produce slight explosions when brought into contact with water. It is a yellowish porous matter and partly in the state of powder.

### GENERAL PROPERTIES.

It dissolves in water producing a considerable rise of temperature and evolving a certain amount of oxygen which provokes coughing. It must be kept away from moisture as it is very hygroscopic; exposed to air it gains 20 per cent. in weight in 24 hours, even when the surface is not disturbed. Its handling may present some danger when it is in contact with water and organic matter simultaneously. It can, for example, be heated with aniline (azobenzine being formed) or with benzine, but if water be added to the mixture flames are produced, accompanied in the case of benzine by an explosion.

The commercial article contains about 20 per cent. of active oxygen, corresponding to the formulæ $Na_2O_2$ (20·51 per cent.) whilst peroxide of barium only contains about 8 per cent., and hydrogen peroxide (12 vols.) about 1·5 per cent. It dissolves without evolution of oxygen in dilute acids when the temperature is not allowed to rise and a solution of hydrogen peroxide is thus produced.

Cellulose is violently attacked by a warm, tolerably concentrated solution (15 per cent.) of sodium peroxide. It becomes yellow and disintegrates; when washed and treated with a weak acid it takes a deep shade in a bath of methylene blue.

This phenomenon is also produced, as is already known, when mercerised cotton is boiled with caustic soda solution containing hydrogen peroxide. The peroxide is too alkaline to be employed directly for the bleaching of textile fibres of animal origin, such as silk and wool. The processes recommended by E de Haën are, therefore, based on the use of peroxide of magnesium, the use of which for bleaching has already been studied, and which has been shown to be more stable than peroxide of hydrogen.

Three parts of magnesium sulphate, and one of sodium peroxide, are, therefore, dissolved in water, these proportions corresponding approximately with those required by theory:—

$$MgSO_4 . 7\,aq. + Na_2O_2 = SO_4Na_2 + Mg\,O_2.$$

### USE IN BLEACHING WOOL.

E. de Haën's process:—Free the wool thoroughly from grease, and put into a bath at 30° containing 30 per cent. of the weight of material of sulphate of magnesium free from chlorine, turn several times, remove, add peroxide of sodium (10 per cent. on the wool), put in again, raise the temperature to 60-70°, keep in for ¾-1 hour, take out, pass into dilute sulphuric acid to remove the magnesia, wash, and dry.

### BLEACHING OF TUSSUR.

Scour the material, and remove the soap in the usual way. For every 10 kilos. of material prepare a bath of 2,500 litres of water at 30-35°, dissolve 90 kilos. of magnesium sulphate free from chlorine, give three or four turns, remove and add in two or three lots 30 kilos. of peroxide of sodium. After each introduction of this stir the bath well, then as soon as the whole has been dissolved, raise the temperature to 80-95° and put in the goods. The operation lasts 1½-2 hours. Remove the excess of magnesia by dilute sulphuric acid, wash, drain, and dry or pass on to the dyeing. The process can be applied to ivory, feathers, bone, and bristles.

### BLEACHING OF MIXED SILK TISSUES (WOOL AND SILK COTTON AND SILK).

Scour the pieces well before bleaching, and remove the soap by repeated washings. Enter the tissue into a bath at 30° containing, according to their shade, 30-36 per cent. magnesium sulphate free from chlorine, give several turns, remove, add 10-12 per cent. of peroxide, stir, introduce the goods, raise to 95° in ¾ hour, and finally boil. Finish as before. For 100 metres of tissue, ·6 m. broad and weighing about 5 kilos., use 250 litres of water.

## AP MAKING WITH COTTONSEED OIL.

ave received many inquiries from readers in different places oncerning the manufacture of soap from cottonseed oil, and ing account, given in a communication to the American nal, of how this oil is employed by a practiced soap maker, uch information upon this point which is of a useful nature. ion of how much soap a given quantity of tallow will make is ficult point to gauge. In the following method one of the s claimed is that the yield of soap agrees with calculated lbs. of fat giving 535 lbs. of clear waxy soap. The formula w has been successfully used for eighteen months.

| | POUNDS |
|---|---|
| ed cottonseed oil | 164 |
| w | 16 |
| "K" | 75 |
| te of soda "N" | 75 |
| oil | 1 |
| ic lye, 35°B | 153 |
| 1 | 3¾ |
| oda | 5 |
| | 40 |
| r | 1¼ |
| me | 1 |
| | 535 |

thod adopted for working up this formula is as follows:— ng with the cooling frame, the materials are framed, thus aming the soap. This necessitates the use of a good tight which the cottonseed oil, palm oil, and tallow, carefully r measured, according to the proportions given above, are aving first been warmed to a temperature of 115° F. The iously warmed and cut with a small amount of weak lye to id, is then added.

me is now rolled under the mixing machine, which has nafts and blades. These mixer shafts are lowered into the mixture and set in motion. The caustic lye and the sodium e now added, and the mixture stirred for seven to ten hen the starch and sal soda and silex are added, and the ed for another four or five minutes. The mixture should then ssy and smooth appearance, indicating that the incorporation e. The perfume is added, the mixing blades removed, and set aside to cool. The soap will be quite hard in a reasonable time. It may be stripped on the second day, and cut upon The difference in cost between tallow and cottonseed oil the element of economy, whilst there is no loss save the hich evaporates during the three days cooling, no spent lye gres. Lastly the soap is found to do good work in actual e wash tub, containing less moisture than there usually is in settled soaps.

## OUR FOREIGN TRADE.

preciation which has attended our efforts to give a brief w of our foreign trade in chemical products has been o encourage us to give further attention to this matter. In shall endeavour to afford our readers the information given y month, the figures being abstracted from the official returns.

GERMANY.

ng to the returns of the Consul-General for Germany in he return in that country from January to June, 1892, in the ioned articles was as follows:—

| Class. | Imports. | Exports. |
|---|---|---|
| | 100 kil. | 100 kil. |
| ement | 15,218,834 | 16,603,769 |
| oils, fats, etc. | 2,754,275 | 418,537 |
| paper goods | 89,077 | 735,057 |
| | 3,285,092 | 12,372 |
| ther fuel | 52,012,191 | 48,605,419 |
| , etc. | 761,927 | 279,613 |

parison of the total exports and imports with the returns for ix months of 1891 shows an increase in the imports and a ease in the exports.

AUSTRIA-HUNGARY.

owing are the returns of the Vienna Ministry of Commerce six months of this year. In the undermentioned imports every item, with the exception of "Chemical Substances," shows an increase, while in the exports the only increase is in gums and resins. The total exports and imports as compared with the corresponding period of last year, however, show a decrease in both exports and imports.

| Class. | Imports. | Exports. |
|---|---|---|
| | Metric Centners. | Metric Centners. |
| Seed oil, etc. | 161,367 | 2,506 |
| Minerals | 1,983,998 | 3,656,686 |
| Dye and tanning stuffs | 242,565 | 329,623 |
| Gums and resins | 193,809 | 70,422 |
| Mineral oils, etc. | 675,493 | 11,024 |
| Chemical substances | 386,402 | 133,672 |
| Chemical products | 34,040 | 43,732 |

A Metric Centner is about 94 lbs. Avoirdupois.

INDIA.

The financial and commercial department of the Government of India gave the following return of the trade in foreign merchandise and exports of Indian produce for the month of April, 1892:—

| Class. | Imports. | Exports. |
|---|---|---|
| | Rupees. | Rupees. |
| Chemicals, drugs, dyes, etc. | 1,297,433 | 8,735,695 |
| Oils | 2,114,797 | 756,802 |

The only increase is in the export of oils, while the values of the exports and imports, expressed in rupees, show in each case a decrease amounting in the aggregate to 6,509,213 rupees for the month of April, 1892, as compared with the same month of 1891.

ITALY.

The following are the official returns for the first seven months of 1892:—

| Class. | Imports. | Exports. |
|---|---|---|
| | Lire. | Lire. |
| Chemicals, medicines, etc. | 22,213,109 | 24,761,386 |
| Colours, paints, and dyes | 14,672,216 | 5,543,289 |
| Minerals and metals | 66,157,199 | 24,436,275 |

A Lire is equivalent to 9½d. nearly.

In the imports, the only increase as compared with the same period in 1891, is in colours, the other two items mentioned above showing a decrease. With the exports, however, all three items show a marked increase. Comparison of the total imports shows a decrease as compared with 1891, while the exports show an increase of 63,459,782 lire.

## NEW GREEN COLOURING MATTERS.

By Messrs. Gilliard, Monnet & Cartier.

THE authors have found that dinitro-mono-sulpho-alpha-naphthol (the naphthol yellow of commerce) forms salts with tetra-ethyl and tetra-methyl-diamido-diphenyl-methane (the basis of the ethyl and methyl greens).

*Preparation.*—3,500 kilos. of the green ethyl base are dissolved in 100 kilos. of methyl alcohol of 98° in an enamelled boiler and the solution heated to 30-40°C., the mixture being well stirred with a wooden spatula to ensure complete solution.

A solution of 1,700 kilos. of acid napththol yellow in 4 kilos. of boiling water (distilled) and 0 5 of commercial ammonia is then prepared and poured while hot into the alcoholic solution mentioned above, the whole being well stirred. After cooling to about 30°C., the liquid is carefully filtered.

In order to use the dye, the solution is kept at about 25-30°C, as below this temperature the salt which constitutes the new colouring matter commences to crystallize out. The solution is employed in dyeing in the usual way, and is chiefly employed in the production of blacks on silk, to which it imparts the property of not losing the colour by friction.—*Le Mon. de la Teint.*

## SETTLED LAUNDRY SOAP.

By F. Eichbaum.

CURD soaps not only take first rank among bar soaps, but of late years they have attained the largest consumption. The laundry curd soap is much used in Germany, and, where clean grease and caustic soda are available, it is generally made by the direct process. The greases which find use in its preparation besides, cocoa nut and palm kernel oils, are cotton, peanut, palm and bleached linseed oils, elaidin, bone grease, animal grease and lard mixed together in varying proportions.

As late writers on the subject have proposed the use of such grease as each thought would yield the greatest amount of soap, I have recently been working to the same end with the so-called "kammfett," the animal grease mentioned above which is composed of a mixture of tallow, lard, and the grease from horse fat, and with firm white olein (obtained by distillation from waste mill grease) in combination with palm kernel oil.

I have tried this white, firm olein by direct boiling in various combinations and have obtained very satisfactory results. For instance, I proceeded with a batch consisting of 1,584 pounds of palm kernel oil, 220 pounds of animal grease, and 1,276 pounds of white olein as follows:

The scraps at hand, together with about the same quantity of caustic soda lye of 26°B. as there will be of grease, are placed in the kettle and melted. The animal grease is then added and boiled in, and the liquid palm kernel crutched in, in divided portions. After about 52 pounds of salt are added to the soapy mass, the firm olein is added gradually. About 8 pounds of soda crystals should now be thrown into the pasty mass and the whole boiled free of foam and strong salt water added with constant stirring, until the paste feels wet, and the grains flatten out on bubbling up. The operation of separation should be conducted very carefully, as otherwise the soap will be entirely salted out. If it should happen that the soap has been too much salted, and the lye drops from the paddle when taken out, the soap should again be drawn together by adding hot water until a smooth paste is obtained that is readily moistened.

The kettle should now be covered for a few hours and then, when the handsome, honey-yellow soap is removed, that results from carrying out the process correctly, there will be found a thin layer of dark paste containing all the impurities present, below which is the spent lye. By this method, but little of this dark paste is formed but about 145% of pure white soap is obtained.

When cooled in the forms, this soap exhibits a silvery lustre, and is quite firm After long drying it generally assumes a light yellowish colour, and becomes somewhat transparent which is rather an advantage.—*Der Seifenfabrikant*

## THE USE OF CORN OIL IN SOAP MAKING.

SINCE the manufacture of this material has entered a new era, it will be of interest to know more about it, as it bids fair to play a more or less important part in soap making.

It may not be generally known that ever since its manufacture began in Cincinnati, some years ago, a large soap factory has consumed considerable of this oil. The factory at which it was first made in this country appears to have abandoned the extraction of corn oil, for since its plant was destroyed by fire it has not been rebuilt; in fact, the venture in this case was not a paying one.

In the process adopted in glucose works for the production of this oil the corn, to begin with, is steeped in water, whereby the hull is loosened from the grains and becomes quite tough Next the corn is crushed between rollers. Examining such a crushed grain closely it is found that the starch has been crumbled by the pressure, while the softened germ has remained whole and forms one piece about the size of a grain of rice; the outer hull at the same time has merely burst into a few large pieces. When the crushed corn is next run into a tank partly filled with water the starch and the particles of bran will sink to the bottom, while the germs will float on the surface. Here then the latter are obtained in the most favourable condition possible for extracting the oil by pressure The subsequent manipulation and use of the oil cake for feeding purposes are then similar as in the well-known production of other seed oils This process is patented and is carried out by the inventor, Dr. Behr, at the glucose works where he is engaged as chemist. Whether or not other glucose factories will adopt the manufacture of corn oil is a matter which we are unable to tell now; the process outlined above is patented, and then much will no doubt depend on the utility of the oil, which is still to be more definitely determined in course of time. At present, we understand, a new use for it has been found in tanneries, for treating leather, while on the other hand the export to Germany has received a check by decision of the collectors of customs which imposed a rather high d on the oil.

Concerning its use in soap factories we have already made ment It being a drying oil, the use of corn oil, it was believed, would ca rancidity of soap, and the first experiments in that line indeed ten to confirm this apprehension. However, in view of the fact that a little of it is employed—and has been for some time—in two three soap factories regularly, would indicate that by proper treatm this difficulty can be overcome.

## TRANSPARENT SOAP.

THERE are many recipes for the manufacture of transparent so but out of the number there are a good many which are liable give disappointing results, because the soaps so made do not ret their transparency. In order to make transparent soap in the m successful way the warm process is preferable to the cold. The follo ing is a process which has been recommended for practical use, wh a good soap is required without employing alcohol:—48 lbs. of tall 42 of cocoanut oil, 60 of castor oil, 90 of a 35° Beaumé lye, are tak and the fats saponified by running in the lye. The mixture is t covered and the temperature allowed to rise to about 200° F; 40 l of sugar dissolved in 42 lbs. of water, 10 lbs. of glycerine added, the whole brought to a temperature of about 175° F When the m begins to form a thick clear mass with only a very thin skin, 16 lbs sal soda, after being finely powdered, is thoroughly crutched in. Sho the amount of soda specified be insufficient to make the soap quite h another two or three pounds may be added. After cooling to 140° any desired colour, dissolved in hot water, is then crutched in till temperature sinks to 130° F. If a heavy scum appears on the surf before colouring there is not enough water, and the soap will not co out clear, sufficient to render it so must therefore be added. The s is then ultimately framed.

It is as well to note in connection with the preparation of transpar soaps in general, that it is important that the exact quantities of and oils are taken, in order to accomplish which it is best to weigh the quantities after melting and clarifying the same.

Also the soap will look better the older and drier it is before press previous to which operation it is advisable to slightly warm the cak though this is not essential.

## THE HAMBURG WATER SUPPLY.

IF there is any need to emphasise the importance of doing all we to insure parity in our water supplies in this country, the follo ing remarks concerning the water supply of Hamburg does so markedly. The information is reliable, the authority being a sp correspondent to the *Times* who says:—The whole of Hamburg, includ the nearer suburbs, is supplied almost exclusively with water from Elbe, and the intake is situated about two miles above the to The river Elbe itself is rather cleaner than the London Thame that is, the Thames at London Bridge—from which the English rea will understand that a rather extensive purifying process would necessary to make it fit to drink. Will it be believed that it underg no purifying process whatever, and that this has been going on for years? The waterworks date originally from 1844, since which t they have been gradually extended. They consist of a pump station and four settling basins that is all. There is no filtrat whatever. Originally the basins may have been of some use, but many years, owing to the increased consumption, they have b worse than useless; the water does not settle at all, it just flows and out, taking a deeper taint from the accumulated foulness of bed The reader can imagine the state in which it is delivered consumers No, I am wrong; it is impossible to imagine it I qu the following from a report published in 1887:—"Up to the pre time the water of the town waterworks is delivered to consumers purified. When the spring floods come down the Elbe assum dirty yellow colour, and is quite thick and muddy. Consumers rec it in exactly the same condition. Further, the pipes are infested most of the lower fauna of the Elbe. In many places, particul where the current is slower, either because the consumption is les the pipes larger, they are completely encrusted with mus and bryozoa, among which small crustacea and worms li in enormous numbers Frequently in spring small eels app in such masses as to amount to a veritable calamity." T was in 1887, and things have got worse since then. To the above should be added snails, crabs, caterpillars and beetles with stic backs and other fishes I had to give up washing at Hamburg could not see the bottom of the bath, and though I am no more a

; cholera than of catching a broken leg, it seemed wiser to water alone, boiled or unboiled. A Hamburg doctor has the theory that the unusual temperature of the water under e heat in August had the effect of destroying a great deal of life infesting the pipes, and that the dead matter formed a nourishing diet for the comma-bacillus. He may be right; is to me to matter very little whether the creatures are dead side the monstrous fact that they are there at all. The state rns, which are, of course, choked with solid matter, makes se—in fact the chain of pollution grows with every link in the river is cleaner than in the waterworks, cleaner in the s than in the mains, and cleaner in the mains than in the Only one thing was wanted, and that was to provide for the f the cholera poison into the water system; and this, too, ed. The intake is so situated that the flood tide from the tfalls can reach it. To put it graphically, in a Hamburg sewage runs out at the basement and in again at the roof, a little tour in the river and the waterworks. I went to erworks, and, in spite of all I had seen, heard, and read shed. They are nothing whatever but particularly filthy fish taining muddy water, slimy weeds, a peculiarly offensive k deposit, and shoals of foul-feeding fish.

going virtually points to the defective water supply being a tant if not the chief factor in the recent outbreak of cholera.

# Our Book Shelf.

BOOK FOR BREWERS. By H. E. Wright, M.A., 503 p. p. ppendix and Index, London: Crosby Lockwood and Son.

always that the title of a book conveys the exact nature of an altogether satisfactory manner, but with the case in is not the slightest doubt that the title expresses to a nicety er of this work, for it is indeed a handy book. Well nder special headings which separate each paragraph, and vith a good index, every facility for speedy reference is

ortunate that the glossary of which mention is made in es in the text, could not ultimately be published as part of but its absence is in a measure compensated for by the of its being published by itself at a subsequent date.

few chapters are chiefly devoted to the consideration of r manipulative details, the discussion of plant its cost and e being placed at the end of the book, in order to facilitate e same by students

III. is an important one dealing with the quality of the h is best suited for brewing purposes. In describing the employed for analysing water, both Wanklyn's and methods are explained, and several other simple, though e tests are mentioned. The trait which is very prominent pter is one which pervades the whole work, namely, the ature of the book On every debatable subject we have n an unbiased fashion the opinions which have been explanation of these points, making the work exactly what o be, a comprehensive review of the conclusions of modern regard to brewing

is one place in the work where the precision, which is so prevalent, is perhaps rather too redundant, it is in the for preparing the laboratory, it being scarcely necessary, ibing the fitting up of a drying oven, to premise that the end of the thermometer is placed in the interior of the oven. nts, however, are merely minor details, and must carry oportion to their importance.

e book in its entirety it is a regrettable fact that as a tech- ook it is in many features unique, and we should gladly rks of a similar character in connection with other indus- ough the requirements of the student are primarily con- tequaintance of half-an-hour's duration cannot fail to impress l brewer with the sense of having found a trustworthy actical counsellor in brewery matters.

## *ANSWERS TO CORRESPONDENTS.*

.—We trust you will learn all you want. We have communicated rm ourselves as well.

t has been sent as requested.

are obliged to you for your acknowledgment and expressions of .

.—We are sure you will find them useful and you are by no means the ns who have thought so evidently, for inquiries have been numerous.

thank you for your communication.

all be glad to hear from you further in the matter, though we have as yet.

lon).—The matter is under consideration at present.

# NOTICES.

## LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of

THE CHEMICAL TRADE JOURNAL

From

MR. JOHN HEYWOOD,

2, Amen Corner,

Paternoster Row, E.C.,

On usual trade terms.

## FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed* MONEY ORDER is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

# Trade Notes.

RECENT TRADE MARK.—"The Housewife's Friend," and sketch of steering-wheel, on label; for medicated soap. By Wm. Gossage and Sons, Widnes. 165,724.

ROTHERHAM WATER CONDEMNED.—It is stated at Rotherham that Dr Theodore Thompson, one of the Local Government Board medical officers, has made an inquiry into the condition of the water supply supplied by the Rotherham Corporation for drinking purposes, and in his report has condemned it on the ground that it has been the cause of an enteric fever epidemic.

MESSRS. J. M. STEEL AND CO.—We are pleased to learn that Mr. J. M Steel, who has for many years been connected with Messrs. Sadler and Co., Limited, and also Messrs. Krayer, Back and Co., has recently commenced business as broker in Colonial Chemical and Coal-tar products in partnership with Mr. J Sparenborg, of Calcutta. The style of the firm will be Messrs. J. M. Steel and Co., of 18 Leadenhall-street London.

RUSSIAN TAX ON SALT.—Last week there was an interesting article in our columns showing how the Russian salt industry had advanced by leaps and bounds, owing to the abolition of the duty on salt It is now stated in St. Petersburg that the Minister of Finance contemplates the reintroduction of the salt tax, the creation of a tobacco and spirit monopoly, and the increase of the excise duty on naphtha.

A NEW SOURCE OF ALUM.—A company is being formed for the purpose of working the natural deposits of sulphate of alumina in New Mexico, near Silver City. The deposit is found in a moderate-sized mountain which is split into two sections by the Gila River The rock that has been taken out so far contains from 30 to 80% of alumina. It is easy to work and the promoters of the company claim that the product can be sold for a third less than the alum now on the market.

PERSONAL.—Mr. John Spencer, Globe Tube Works, Wednesbury, has purchased the whole of the pump patterns of Mrs. Eliza Tinsley, Great Bridge, and is now making all kinds of brass and iron lift, force, and hand pumps. Mr. Spencer has now got his new mill for making lap-welded steel and iron tubes fully at work, and is turning out boiler tubes, water mains, artesian well tubes up to eight inches in diameter, telegraph poles, and all kinds of tubes used in connection with the transmission of electrical power, in addition to his steel tubes with flanges welded on.

WOOD SUBSTITUTE.—The following composition has lately been patented by Mr. A. W. Kerr as a substitute for wood, it also being suitable for making crucibles, retorts, and bricks, etc. The composition consists of hydrated silicates of magnesia and alumina, such as talc, kaolin, or other clays and clayey loams mixed with sphagnum, peat, or the like. The composition is moulded into bricks in a special apparatus and then fixed, the peat being consumed and leaving a porous mass. In the making of other articles they are dried in chambers through which the waste hot air from the brick kiln is forced.

PRICE'S PATENT CANDLE CO.—*Dividend.*—At an extraordinary annual meeting, held on Friday last week, the chairman, after criticising the accounts in moving the declaration of a half-yearly dividend of 12s. 6d. per share, said that the first half of this year on paper did not look so favourable as the corresponding period last year,

but, taken on the average, they had done quite as well as in the previous period. The reason for the difference in the figures was accounted for by the fact that a large purchase of paraffin scale had been made. In conclusion he said the outlook of candlemakers was not very satisfactory.

A Large Contract for Gas Liquor.—Messrs. Brotherton and Co., ammonia and tar distillers, Leeds and Wakefield, have just secured the Birmingham gas liquor contract for ten years from July next. This is undoubtedly the largest contract of the kind ever entered into, and represents the production from fully five million tons of coal.

The New Alkali Act.—On the 1st of April, 1893, the new Alkali Act comes into force. The Local Government Board have issued a letter to ascertain from sanitary authorities particulars of the works which are in operation, so that certificates of registration may be granted to the owners. The works which will be affected include alkali waste works, barium works, and works for the manufacture or extraction of strontium, antimony, bisulphide of carbon, lead deposit, Venetian red, arsenic, nitrate and chloride of iron, muriatic acid, tar, and zinc. The Act also applies to the separation of silk or woollen fibre from vegetable fibre by means of muriatic acid.

Testing Spices.—At the recent meeting of food-chemists and microscopists in Vienna, the following maximum and minimum figures for the examination of spices were proposed:—*Allspiece*, not more than six per cent. ash, of which not more than 0·5 per cent. should be insoluble in hydrochloric acid; *cinnamon* should not yield more than 5 per cent. ash, not more than 1 per cent. insoluble in hydrochloric acid; should yield not less than 1 per cent. volatile oil; *cloves* not more than 7 per cent. ash, not more than 1 per cent. ash insoluble in hydrochloric acid, not less than 10 per cent. volatile oil; *black pepper*, not more than 6·5 per cent. ash, not more than 2 per cent. ash insoluble in hydrochloric acid, not more than 15 per cent. nor less than 12·5 per cent. moisture; *white pepper*, maximum ash percentage 3·5 per cent., 1 per cent. ash insoluble in hydrochloric acid, moisture as above; *saffron*, not more than 8 per cent. ash, 0·5 per cent. ash insoluble in hydrochloric acid, 13—14·7 per cent. moisture, 6—7 per cent. chloroform extract.

The Analysis of Bauxite.—The analysis of bauxite is by no means a difficult matter, and the following is a method which is recommended for its simplicity and reliability:—Weigh out two grammes of the finely ground ore and place in a platinum crucible with cover on; place over flame and heat gradually at first, and then raise the heat to redness; allow this to continue for 15 minutes; remove crucible and allow to cool; weigh, and calculate loss as water. To the crucible containing the dried powder add sodium carbonate and fuse; when at quiet fusion, remove crucible and dissolve out contents with water and a little hydrochloric acid; evaporate to dryness; take up with as little HCl as possible and water; filter and wash well with hot water; make up solution to 300 cubic centimetres; shake well to mix; take out 50 c.c. and determine the alumina by precipitating with ammonia; take another 50 c.c. and determine iron by usual method. The silica is also determined as usual. Great attention, however, must be given to the sampling, and to perform the same an experienced person should be consulted, as the accuracy of the results obtained by the analysis depends very largely upon the way in which the sample has been taken, careless or indifferent sampling often leading to serious errors.

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

There is a small and steady business doing in Benzol at 1s. 8d. for 90s. and 1s. 3½d. to 1s. 4d. for 50s. to. 90s. Carbolic acid is still in demand, and pitch keeps up its price fairly well. Anthracene is kept back by holders who appear to expect that the controversy which has taken place during the past few weeks will lead to some definite improvement in the value of the article. There is so far no change in prices.

Although the rush of last week has subsided, the sulphate of ammonia market continues strong and spot sulphate is exceedingly scarce. Buyers afraid of pushing up prices are covering their greatest needs only, but as consumers hold no stocks whatever it stands to reason that they will be able to keep from the market but a very short time. The future tendency seems to rest entirely with the producers, who to-day have greater control over the future of the sulphate market than they have had for a long time, and they ought to make good use of it. Quotations remain at £10. 2s. 6d. to £10. 3s. 9d. at the various ports, although it is rumoured that £10. 5s. has been paid at Leith by a desperate buyer.

## REPORT ON MANURE MATERIAL.

The market for phosphatic material continues very quiet, and out any improvement in prices, but there has been more doi ammoniacal material at prices rather favouring sellers.

Florida phosphate rock 75/80% continues to offer at 8½d. per in cargoes, c.i.f. to U.K., but we do not hear of any transac The value of Peace River rock can hardly be quoted over 7d. or per unit, and there are sellers of dried South Carolina River roc are inviting offers at 6½d. per unit, in cargoes, c i.f. to U.K.

Bone ash continues to drag on the market, and £3. 5s., on 70 Hamburg terms, is now full value. The scarcity of Plate cargoes of bones continues, and £4. 5s. per would no doubt be obtainable for anything of handy delivered good U.K. port. Crushed Kurrachee bones, for ship may be had at £4. 2s. 6d. ex quay Liverpool. There have further sales of *fine* East Indian bone meal at £4. 7s. 6d. per quay Liverpool, but for shipment something under £4. 5s. would have to be accepted for *fair average quality*. There enquiry for charring bones, and £3. 15s. to £3. 17s. 6d. probably be obtainable for fair to good parcels.

Nitrate of soda on spot is without much alteration, but arrived or near at hand have improved quite 1½d. per cwt. from point. On spot, ordinary quality is selling at 8s. 3d., and ref 8s. 6d per cwt. For due cargoes, 8s. 3d. asked for ordinary and 8s. 3¾d per cwt. paid for a cargo of good test, arrived at call For cargoes further ahead, prices asked by sellers still business of any importance.

There is a little more enquiry for dried blood, but 8s. 6d. pe free rails, may still be quoted as nearest value. There has further fresh arrivals from River Plate.

## MISCELLANEOUS CHEMICAL MARKET

We have to report a good week's business in most of the chemicals. Bleaching powder remains steady at about £9. 15 but re-sale lots can be obtained at lower rates. For contract 1893 £7. 5s. nett per ton is quoted. For soda ash in all there is good demand and prices are firm. Caustic soda does no as briskly as could be desired, but prices remain unchanged, F.o.b. Tyne, 77%, £11. 15s.; f.o.b. Liverpool, 74%. £11 70%, £10. 5s.; 60%, £9. 2s. 6d.; cream, 60%, £8. 17s. 6d., lots and upwards. Soda crystals sell slowly at £2. 18s., bags; casks or barrels. Chlorate of potash scarce at 7½d. rails. quoted 8½d., but unobtainable for prompt. Litharge quiet a Foreign white sugar of lead nominally £25. 10s. c.i.f, brow Nitrate, £20. Acetic acids are selling at unremunerative Acetate of soda firm at £18. 10s. Recovered sulphur dull at £ rails; roll, £6. 10s.; flowers, £10. Sulphate of copper has improved in demand, but not in price; £15. 10s. f.o.b. is t quotation. Sulphocyanides almost unsaleable. Barium is quot ammonium, 7d. Bichromates are in want of improvement. prussiate of potash steady at 10¼d. Carbolic acids weake quote crude 70's, 1s. 7d.; 60's, 1s. 6d.; crystals, 39/40's, 5¾d

## THE METAL MARKETS.

LONDON, Wednesday.—Pig iron quiet. Scotch warrants at 41s. 8d. cash. Middlesborough 39s. 6d. cash, and H 49s. cash. Copper easier: Chili bars, G.O.B.'s and G.M.B.'s at £43. 17s. cash, and £44. 7s. 6d. to £44. 15s. three months firm: Straits closed at £92. 2s. 6d. to £92. 12s. 6d. cas £92. 10s. to £93. three months. Australian, £92 12s. 6d. cash. I ingots, £95. Lead, firmer: Spanish, £10. 8s. 9d. to £10. English, £10. 12s. 6d. to £10. 15s. Silesian spelter: Ordinary 7s. 6d. Quicksilver: First hands, £6. 7s. 6d., second hand 5s. 6d. *Copper shares* quiet: Cape, 1½ to 1⅝; Copiapo 2⅛; Libiola, 3⅛ to 3¼; Mason and Barry, $2\frac{7}{16}$ to $2\frac{9}{16}$; Rio $14\frac{15}{16}$ to $15\frac{1}{16}$; Tharsis, $4\frac{5}{16}$ to $4\frac{7}{16}$; Namaqua, ⅝ to ¾; Pan $\frac{5}{16}$ to $\frac{7}{16}$.

WOLVERHAMPTON, Wednesday.—Better accounts wer to-day of the state of trade. Orders for manufactured iron are i ing, and works are more fully employed. Prices rather particularly for hoops, at £6. 12s. 6d. to £6. 15s. The Tub Makers' Association are attempting to prevent the undersellin existing, some makers accepting less than £6. Sheets in better r

Doubles, £7. 5s. upwards; lattens, £8. Bars, £7. for second marked sorts, £5. 15s. common. Pigs well sustain the late improvement. Staffordshire all mines, 65s.; medium, 46s.; common, 38s.

GLASGOW, Wednesday.—Market quiet, with small business. Scotch done at 41s. 8d. cash; also at 41s. 10d. one month; closing with buyers at 41s. 7½d. cash and 41s. 9½d one month, sellers ask ½d. more. Middlesborough closes with buyers at 39s. 6d. cash; sellers ask 39s. 9d. Hematite closes with buyers at 49s. cash; sellers ask 49s. 6d.

## LIVERPOOL OIL AND COLOUR MARKET.

Wednesday.

OILS.—Palm oil: prices have slightly declined, and there has been more business at the reduction. Lagos is quoted £22, Cameroon £19. 15s, and Bennin £20. per ton transit. Olive remains steady, £35. to £40 per tun still being quoted according to quality, with a fair business doing. Linseed has experienced more enquiry and prices are on the advance, present value being 19s. to 20s. per cwt. in export casks. Cottonseed has not maintained its position, Liverpool refined having ruled during the past week at 18s 3d. per cwt, the market is, however, steady thereat; American unaltered Castor oil is steady, though quiet, good seconds Calcutta are at 2$\frac{15}{16}$d. per lb. again, while first pressure French remains at 2$\frac{9}{16}$d. In tallow the ruling figures are unchanged, the market being quiet, but steady. Resin continues at 3s. 9d., but is dull generally. Spirits of turpentine are steady at 21s 6d., and the demand is rather better at the reduction. Petroleum is quiet; American 5½d to 6¼d, according to quality; Russian refined 4⅜d. to 4½d.

COLOURS continue to rule very steady, and there is no material alteration to report in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s., medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20.

## TYNE CHEMICAL REPORT.

Tuesday.

Chemicals are steady, with quiet business doing. Bleaching powder still scarce, though for next month price is slightly easier, £9. 5s. and £9. 10s. being quoted.

Bleaching powder, softs, £9. 10s. per ton; hards, £9. 15s per ton; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £4. 17s. 6d. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton, in 10 ton lots; silicate of soda, 75° Tw. £3. per ton, 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per ton; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 7d. per lb. less 6%; pearl hardening, £3. 10s. per ton nett; pure white sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta crystals, £19. per ton; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; hydrate of barium, £11. per ton.

South Durham salt unchanged at 9s. 6d. to 10s. per ton f.o.b. Tees.

Coals: Trade quiet with full supplies. Good demand for gas coal. Best Northumbrian steam, 10s 3d. and 10s. 6d. per ton; small coal 3s 6d. and 4s. per ton; gas coal, 7s. 9d. and 8s. 3d. per ton; coke in strong demand at 15s. and 16s. per ton.

## THE LIVERPOOL MINERAL MARKET.

Although quietness in trade generally prevails, our market maintains a firmness in most ores. Manganese: The continuation of cholera still prevents Russian shipments to a great extent, and deliveries are much behind in consequence; hence there are no arrivals, whilst stocks are practically nil. Very much higher prices have, therefore, been paid. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump): unaltered and quiet. Raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand), continues in good demand; lump 20s., seconds 16s., and thirds 12s. French chalk: Arrivals are small, but a good spot trade is being done at full figures. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump, none offering; nuts, 70s. to 80s.; whilst finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore freely offered; prices easy; Bilbao, Irish, and Cumberland easier. Santander and manganiferous quiet. Emerystone: Best quality inquired for. No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal in good demand, and prices are firm. Chrome ore: There is more doing, and several sales both from spot and forward have been made, at fair prices. Antimony ore steady at £12., and metal £43. to £44. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. 10s. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese steady, and prices are unchanged. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) steady; finest quality 22s. to 23s.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, Tuesday.

Matters have not only not improved in the paraffin industry but have got worse and worse. Agreement between the makers is practically smashed for the moment, and it has to be noted that although the figures given below for scale and wax are the old convention figures these fixtures no longer hold, and in the headlong competition which is momentarily feared, scale and wax may be thrown on the market anyhow, and sold at prices far below what the position of supply and demand warrants, even when gauged from the least favourable point of view. Efforts for staving off catastrophe are still being made, and almost daily meetings held, but the mutual antagonism seems incapable of being laid. Paraffin scale may be taken as being procurable at least one half-penny below the old combination prices as given below. Lubricating oils are slightly cheaper owing to slackened demand, and paraffin spirit is suspected of weakness; but burning oils are fairly steady and deliveries considerable.

Bleaching powder is now receding from its brief boom, and is obtainable under £9. for prompt, with a lessening ratio for forward. Some of the others are still very scarce, not to say unobtainable, but this is not expected to continue. Sulphate of copper is a trifle dearer; the others are stationary, with the exception of sulphate of ammonia, which continues the late amendment, but at only a very deliberate rate of progress. One report states that £10. 2s. 6d. has been got for prompt Leith, but this is probably no more than anticipatory.

Chief prices current are:—Soda crystals, £2. 17s. 6d., nett Tyne; alum in lump, £5. 10s., nett Glasgow; soda ash, 1⅜d., less 2½%, Tyne; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; refined alkali, 1⅝d., less 2½% Tyne; bleaching powder, £8. 17s. 6d. to £9. nett Tyne; saltcake, 36s. 6d.; borax, English refined, £29., and boracic acid, £37. 10s. nett, Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 7½d., less 5% Liverpool; nitrate of soda, 8s. 3d. to 8s. 6d.; sulphate of ammonia, £9. 18s. 9d. to £10. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £14. 7s. 6d. less 5% Liverpool; paraffin scale (hard), 2$\frac{15}{16}$d., and soft 2$\frac{15}{16}$d. to 3d. per lb.; paraffin wax, 120°, semi-refined, 3⅝d. to 4d.; paraffin spirit (naphtha), 7d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower); ditto (lubricating), 865°, £3. to £3. 10s., 885°, £4. 10s. to £6., and 890/895°, £5. to £7. Week's imports of raw sugar at Greenock were 2,195 bags.

# New Companies.

**The District Iron and Steel Co., Ltd.**—Capital £50,000. in £10. shares. This company is formed with a view to taking over three iron works, situated at Smethwick in the county of Stafford, and to carry on the business of manufacturers of galvanized iron, iron and brass founders, and steel and iron merchants. The subscribers to the memorandum of association are: T. Keen, Smethwick, ironmaster; F. L. Broughton, 66, Holyhead-road, Handsworth, ironmaster; E. Carter, St. Catherine's Christ Church-road, Cheltenham, gentleman; E. M. Carter, 33, Waterloo-street, Birmingham, chartered accountant; P. H. Carter, 33, Waterloo-street, Birmingham, chartered accountant; F. H. Hahn, 5, Hermitage-road, Edgbaston, merchant; T. Asthury, South-road, Smethwick, brick manufacturer; J. Galbraith, Church-street, Wellington, bank manager.

**The Electro Alkali Co., Ltd.**—Capital £160,000. in £10. shares. This company has been formed with a view to acquire or purchase patents or inventions relating to any chemical, electrolytical, or electro-chemical process, plant or apparatus connected with manufacturing processes. The subscribers to the memorandum of association are: W. Young, 109, Crofton-road, Peckham-road, S.E., gentleman; F. G. Allen, Trelawn road, Brixton, S.W., gentleman; F. Virgo, 93, Earl's Court-road, S.W., gentleman; W. H. McCarthy, 101, Brook-street, Kennington, S.E., accountant; J. Payne, 5, Richmond-terrace, Clapham-road, S.W., secretary to a public company; J. R. Threadgold, 19, Shenley-road, Camberwell, S.E., shorthand writer; S. T. Bishop, 6a, York-grove, Peckham, S.E., gentleman.

**Ozone Syndicate, Ltd.**—Capital £25,000. in shares of £5. each. The object of this company is to carry on the business of ozone producers and refiners of sugar, also manufacturers of electrical and other apparatus and to carry on the business of chemical engineers and other business connected therewith. The subscribers to the memorandum of association are: J. Raworth, 49, Queen Victoria-street, E.C., chief engineer, Brush Electrical Engineering Co.; B. Broadhurst 2, Glenthorpe-villas, Surbiton, S.W., secretary of public company; W. C. Manns, 19, Upper Kyverdale-road, N., accountant; R. A. Dawburn Wandsworth, engineer; G. B. Mee, 93, Leadenhall-street, E.C., merchant; W. B. Gold, 23, Leadenhall-street, E.C., merchant; J. Hepher, 34, Burney-street, Greenwich, S.E., accountant.

**The Parchment and Paper Co., Ltd.**—Capital £5,000 in £1. shares. Incorporated with a view to carry on the business of wholesale paper merchants and agents, and to carry on and take over the business lately carried on by J. W. Switche.

# Gazette Notices.

### PARTNERSHIPS DISSOLVED.

J. W. Jones, and A. W. Crossley under the style of the New Cambrian Chemical Co., Talywain Pontymoill, Tawnforge, and Caldicot, Monmouthshire, drysalter and colour manufacturers.

Rickman and Atkins, Walbrook, City, engineers and contractors for water softening and filtration.

H. Ryland, W. Procter, and F. W. P. Ryland under the style of H. and T. Procter, Bristol, manufacturing chemists and manufacturers, and dealers in agricultural implements and manures, as far as regards F. H. Ryland and F. W. P. Ryland.

### BANKRUPTCY ACTS, 1883 and 1890.

**Receiving Order.**

Robertson, William Fleming, Kensingson Gardens-terrace, Hyde Park, W., late West Drayton, cement manufacturer,

**Adjudication.**

Robertson, William Fleming, Kensington Gardens-terrace, Hyde Park, W., late West Drayton, cement manufacturer.

# The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

### APPLICATIONS FOR LETTERS PATENT.

**Manufacture of Iodine.** J. Simpson. 16,279. Sept. 12th.

**Soldering Aluminium.** O. Nicolai and C. Langenbach. 16,292. Sept. 12th.

**Making Hydrochloric Acid and Pure Silicates of Soda and Lime from Pure Sodic Chloride, Calcic Carbonate and Refuse Sand from Grinding Plate Glass.** H. C. Bull and J. Ramage. 16,297. Sept. 12th.

**Recovery and Treatment of Glycerine.** J. G. Haller and I. Magnus. 16,314. Sept. 12th.

**Artificial Fuel.** C. Winter. 16,322. Sept. 12th.

**Sewage Separating and Purifying Apparatus.** W. F. Goodhue and C. Paulus. 16,333. Sept. 13th.

**Automatic Cask Filter.** H. W. Townsend and J. Brown. 16,343. Sept. 13th.

**Artificial Stone.** J. E. Keseling and C. Fuchs. 16,354. Sept. 13th.

**Treating Slags.** T. Lockerbie. 16,356. Sept. 13th.

**Decorticating Ramie, etc.** W. R. Lake. 16,398. Sept. 13th.

**Evaporating Liquids.** C. W. Cooper. 16,403. Sept. 13th.

**Treating Waste Products from the Manufacture of Starch.** G. J. Epstein. 16,409. Sept. 13th.

**Obtaining White Lead direct from Galena.** P. Bronner. 16,435. Sept. 14th.

**Improvements in Crushing or Grinding Mills.** H. J. R. Pamphilon. 16,451. Sept. 14th.

**Treating Copal, Kauri, Sandrac, and other Gum Resins.** M. Mackay. 16,536. Sept. 15th.

**Improvements in Dry Batteries.** A. E. J. Ball. 16,545. Sept. 16th.

**Manufacture of Explosives.** O. Imray. 16,567. Sept. 16th.

**New Colouring Matters.** C. D. Abel. 16,563. Sept. 16th.

**Manufacture of Paints and Varnishes and Strong Cements.** H. McKenna. 16,573. Sept. 16th.

**Obtaining Bismuth from the Deposit in Calcining Furnace Flues.** A. Kay. 16,582. Sept. 16th.

**Production of Oxygen and Hydrogen by Electrolysis.** P. Garuti. 16,588. Sept. 16th.

**Improvements in the Manufacture of Coke and Recovery of Products.** J. Bowing. 16,622. Sept. 17th.

**Improved Process of Brewing and Apparatus therefor.** W. R. Lake. 16,666. Sept. 17th.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending September 17th.*

**Acetic Acid—**
Holland, 91 pkgs. A. & M. Zimmermann

**Acetone—**
Holland, 17 pkgs. A. & M. Zimmermann

**Alkali—**
France, 110 c. Arnati & Harrison
Belgium, 500 Knight, Hill, & Co.

**Antimony—**
France, 2 t. B. & F. Wf. Co., Ltd.
Melbourne, 19 W. Balchin

**Asbestos—**
Montreal, £400 Magee, Taylor, & Co.
Sweden, 28 M. D. Co.

**Barium Chloride—**
Germany, 24 pkgs. Petri Bros.

**Barytes—**
Belgium, 20 cks. A. Zumbeck & Co.
Holland, 45 W. Pope & Co.
Germany, 23 Tough & Henderson
" 19 J. A. Drew
" 44 W. Harrison & Co.
France, 34 G. Ward & Sons

**Boracic Acid—**
Italy, 40 pkgs. J. Puddy & Co.

**Caoutchouc—**
U. States, 6 c. J. Walker & Co.
" 90 Prop Bull Wf.
Germany, 106 Wallace Bros.
E. Indies, 32 E. Barber & Co.
France, 6 Flageollet & Co.
Zanzibar, 9 Major & Field
" 4 L. & I. D. Jt. Co.
Inhambane, 49 "
Germany, 88 "

**Carbolic Acid—**
Germany, 9 pkgs. L. & J. D. Jt. Co.

**Carbonic Acid Gas—**
Holland, 32 pkgs. Phillipps & Graves
" 11 Volcanic Æration Co.

**Castor Oil—**
Italy, 15 cs. Stebbing & Co.
" 15 Hodgkinson & Co.
France, 6 brls. Beresford & Co.
Germany, 1 T. Christy & Co.
E. Indies, 10 W. Balchin
" 50 R. Gray

**Caustic Potash—**
France, 200 c. F. W. Berk & Co., Ltd.

**Chemicals** (*otherwise undescribed*)
Germany, £12 6 pkgs. T. H. Lee
" 8 L. & I. D. Jt. Co.
" 9 Drolenvaux & Bremner
" 27 Phillipps & Graves
Spain, 12 Baker & Co.
Germany, 12 Petri Bros.

**Chloride of Sulphur—**
Germany, 10 pkgs. Typke & King

**Copperas—**
Germany, 16 pkgs. B. & N. Wf. Co., Ltd.

**Copper Acetate—**
France, 1 pkg. Barron, Harvey, & Co.

**Copper Sulphate—**
Germany, 41 pkgs. Charles & Fox

**Cream of Tartar—**
Spain, 17 pkgs. C. Christopherson
Italy, 43 Howards & Sons
Holland, 19 Middleton & Co.
,, 20 B. & F. Wf. Co., Ltd.
France, 80 ,,
,, 5 W. C. Bacon & Co.
,, 6 Smith, Abbott, & Co.
,, 12 E. W. Carling & Co.

**Dyestuffs—**

**Annatto**
Ceylon, 100 pkgs. J. B. Batty & Son

**Argols**
Cape Town, 6 pkgs. Brown & Elmslie
France, 48 T. Trapp & Sons

**Catch**
Rangoon, 2,444 pkgs. Arracan Co.
,, 500 Perkins & Homer
,, 500 McDougall & Bonthron
,, 260 A. Howden & Co.

**Extracts**
France, 5 pkgs. T. H. Lee
Denmark, 4 R. J. Fullwood & Bland
Belgium, 100 L. J. Levinstein & Sons
Canada, 40 A. J. Humphrey
Denmark, 2 Bailey & Leetham

**Gambier**
Germany, 197 pkgs. H. Grey, Jnr
Singapore, 437 E. Boustead & Co.
,, 441 L. & I. D. Jt. Co.
,, 384 Beresford & Co.

**Indigo**
E. Indies, 72 chts. Wallace Bros.
,, 28 L. & I. D. Jt. Co.
Holland, 4 Ripley, Roberts, & Co.
E. Indies, 30 Forbes, Forbes, & Co.
,, 18 Clarke & Smith
,, 12 Elkan & Co.

**Madder**
Holland, 6 pkgs. Williams, Torrey, & Co., Ltd.
,, 2 W. Jacques

**Myrabolams**
E. Indies, 334 pkgs. Arbuthnot, Latham, & Co.
,, 1,334 Benecke Souchay, & Co.

**Orchella**
Morocco, 7 pkgs. A. Afriat & Co.

**Saffron**
Spain, 1 pkg. B. & N. Wf. Co., Ltd.

**Sumac**
Italy, 210 pkgs. Beresford & Co.
,, 500 J. Graves
,, 100 Middleton Wf. Co.
,, 500 J. Kitchin, Ld.
,, 28 Blundell, Spence, & Co.

**Tanners' Bark**
Melbourne, 115 t. Flack, Chandler, & Co
France, 18 Prop. Chambln.'s Wf.
Adelaide, 3 c. L. & I. D. Jt. Co.

**Turmeric**
E. Indies, 350 pkgs. Lewis & Peat

**Dyestuffs** (*otherwise undescribed*)
A. Turkey, 30 pkgs. N. S. S. Co., Ld.

**Farina—**
Holland, 50 pkgs. Seaward Bros.
,, 25 J. Barber & Co.
,, 249 R. G. Hall & Co.
Austria, 100 Phillipps & Graves

**Glucose—**
U. States, 5 pkgs. 30 c. L. & I. D. Jt. Co.
,, 75 430 c. R. G. Hall & Co.
,, 50 291 Prop. Scott's Wf.
,, 3 18 Union L. Co., Ltd.
,, 50 300 Page, Son, & East
,, 50 277 J. Keiller & Son
,, 75 420 L. Sutro & Co.
,, 50 275 Prop. Chmbln.'s Wf.
,, 500 500 Barrett, Tagant, & Co.
,, 399 2,240 T. J. Warran
France, 200 200 J. Barber & Co.
,, 200 200 Trier, Meyer, & Co.
,, 100 100 Barrett, Tagant, & Co.

**Lead Acetate—**
Holland, 15 pkgs. F. Boehm
Germany, 30 G. Boor & Co.
,, 10 A. Zumbeck & Co.

**Methyl Alcohol—**
Germany, 13 cks. Lister & Biggs

**Mica—**
Canada, £98 W. M. Smith & Sons

**Ochre—**
France, 140 cks. Blundell, Spence, & Co.
,, 55 W. Harrison & Co.
Holland, 3 pkgs. 1 cs. Phillipps & Graves

**Oxalic Acid—**
Norway, 20 pkgs. B. & F. Wf. Co., Ltd.

**Painters' Colours—**
U. S., 1 brl. Knight & Morris
Germany, 7 pkgs. 1 ck. L. & I. D. Jt. Co.
,, 5 cs. 33 cks. T. H. Lee
U. S., 6 W. Johnston & Co.
,, 25 L. & I. D. Jt. Co.
France 43 Flageollet & Co.
Belgium, 27 T. Palmer
Germany, 11 Phillipps & Graves
France, 39 L. & I. D. Jt. Co.
U. S., 2 ,,
Holland, 10 Phillipps & Graves
,, 5 Seaward Bros.
Germany, 2 Magee, Taylor, & Co.
,, 1 Spies Bros. & Co.
Belgium, 100 Union L. Co., Ld.
U. S., 1 J. Watson & Co.

**Paraffin Wax—**
U. States, 85 brls C. Ogleby & Co.
,, 40 cs. Williams, Torrey, & Co
Germany, 109 H. Hill & Sons
Rangoon, 1,318 ,,

**Phosphate Rock—**
Holland, 100 t. Little & Johnstone
France, 230 D. de Pass & Co
U. States, 1,500 A. Hunter & Co.

**Phosphoric Acid—**
Germany, 20 pkgs. Phillipps & Graves

**Pitch—**
N. Russia, 200 cks. Linck, Moeller, & Co.
,, 215 W. F. Malcolm & Co.
Sweden, 400 Sieveking & Co.

**Plumbago—**
Germany, 20 cks. B. Gallaway

**Potash—**
Germany, 10 pkgs. L. & I. D. Jt. Co.
Canada, 129 c. Charles & Fox
France, 180 Petri Bros.

**Potassium Carbonate—**
France, 50 c. L. & I. D. Jt. Co.

**Potassium Sulphate—**
France, 27 pkgs. Weatherley, Mead, & Co.

**Pyrites—**
Spain, 850 t. Anderson, Anderson, & Co.

**Rosin—**
U. S., 506 brls. G. Nutter & Co.
,, 2 H. Hill & Sons

**Saltpetre—**
Germany, 20 kgs. L. & I. D. Jt. Co.
,, 80 P. Hecker & Co.
,, 70 cks. T. Merry & Son
,, 26 Craven & Co
E. Indies, 264 bgs. Lucas & Spencer's Wf.
,, 767 C. Wimble & Co.
,, 224 Brown & Elmslie

**Soda Ash—**
Belgium, 100 c. Magee, Taylor, & Co.

**Sodium Acetate—**
France, 75 pkgs. T. Palmer
Belgium, 9 Leach & Co.

**Sodium Chlorate—**
France, 21 pkgs. A. Hughes

**Stearine—**
Belgium, 41 bgs. C. S. Lovell
Holland, 60 H. Hill & Sons
France, 60 ,,
,, 69 sks. Beresford & Co.
Belgium, 125 H. Hill & Sons

**Sulphur—**
Italy, 18 t. G. Boor & Co.
,, 40 pkgs. Hopcraft & Co.
Spain, 100 t. A. Hunter & Co.
Italy, 10 H. Wallace & Co.
,, 3 Stobbs, Wilson, & Co.
,, 10 C. J. Capes & Co.
,, 250 W. C. Bacon & Co.
,, 23 T. T. Creed

**Talc—**
U. States, £702 Ross & Deering
E. Indies, 180 W. M. Smith & Sons

**Tallow—**
Melbourne, 157 cks. Elkan & Co.
,, 68 pkgs. Baxter & Hoare
N. Zealand, 131 cks. Nelson Bros
,, 181 Flack, Chandler, & Co.
,, 21 Hoare, Wilson & Co.
,, 57 Brown & Elmslie

**Tar—**
N. Russia, 2,239 brls. W. F. Malcolm & Co.
,, 2,233 Linck, Moeller, & Co.
,, 1,000 bls. Prod. Brokers Co., Ltd.

**Tartaric Acid—**
Italy, 40 pkgs. B & F. Wf. Co., Ld.

**Turpentine—**
N. Russia, 50 brls. C. B. Leighton

**Ultramarine—**
Germany, 5 cks. H. Lambert
Belgium, 1 Leach & Co.
,, 50 cs. Union Lightrge. Co., Ld.

**White Lead—**
Germany, 32 cks. Elkan & Co.
,, 12 H. Lambert
Holland, 72 Phillipps & Graves
France, 47 W. Harrison & Co.

**Zinc Oxide—**
U. States, 100 brls. M. Ashby, Ld
Germany, 50 ,,
Sydney, 21 bgs. N. & R. Collyer
Holland, 40 brls. M. Ashby, Ld.
Germany, 25 cks. J. Matton

## LIVERPOOL.

*Week ending September 15th.*

**Acetate of Lime—**
New York, 1,648 bgs.

**Acetic Acid—**
Rotterdam, 12 btls.

**Alkali—**
Antwerp, 39 jars. J. T. Fletcher & Co.

**Borate of Manganese—**
Hamburg, 2 cks.

**Borax—**
New York, 100 bxs.

**Castor Oil—**
Calcutta, 343 cs. Ralli Brs.

**Chemicals** (*otherwise undescribed*)
Rotterdam, 3 cks.

**Colours—**
Hamburg, 4 cks.
Antwerp, 9 brls. J. T. Fletcher & Co.
Rotterdam, 5 cs. 30 cks.

**Cream of Tartar—**
Barcelona, 6 cks.
Bordeaux, 2 J. C. Harker
Rotterdam, 4

**Dried Blood—**
San Nicolas, 736 bgs. W. B. Dickinson & Co.

**Dyestuffs—**

**Argols**
Barletta, 311 bgs. 30 cks.

**Cochineal**
Gr. Canary, 4 bgs. G. T. Bruce
Teneriffe, 21 F. Huth & Co.
Las Palmas, 6 Widow, Duranty & Son

**Divi Divi**
Rio Hacha, 142 t. E. Brownhill & Co

**Extracts**
New York, 75 bxs.
Fiume, 410 brls. Millers Tanning Extract Co.
,, 202 brls. Boutcher, Bacon & Co.

**Saffron**
Valencia, 1 cs.
Barcelona, 3

**Valonia**
Marathionisi, 220 t.

**Farina—**
Hamburg, 200 bgs.

**Glucose—**
New York, 50 bxs. T. M. Duche & Son
,, 273 brls.

**Horn Piths—**
La Plata, 25,000 W. B. Dickinson & Co.

**Lime—**
New York, 257 bgs.

**Mica—**
New York, 15 brls. Robinson & Allen

**Mineral White—**
New York, 50 bgs.

**Ochre—**
Spain, 101 brls. Gracie, Beazley & Co.
Marseilles, 32 cks.

**Paint—**
Boston, 38 cs. T. Trotter & Sons
,, 14

**Paraffin Wax—**
New York, 25 cs. R. Gillies

**Phosphate—**
Montreal, 60 t.

**Pitch—**
Archangel, 100 cks.

**Potash—**
Stettin, 128 cks.

**Pyrites—**
Huelva, 1,700 t. Tennants & Co.

**Rosin—**
New York, 1,000 brls.
Baltimore, 1,500

**Saltpetre—**
Calcutta, 351 bgs.
Hamburg, 2 cks. 10 kgs.

**Soap—**
Bari, 719 cs.

**Soapstone—**
Bordeaux, 100 bgs.
Philadelphia, 140

**Stearine—**
Antwerp, 60 bgs.

**Tallow—**
New York, 250 tcs. 300 cks.
Philadelphia, 45 hds. Richardson, Spence & Co.
,, 34 100 tcs.
Boston, 45

**Tar—**
Archangel, 4,601 brls.

**Tartar—**
Bordeaux, 6 cks.

**Tartaric Acid—**
Rotterdam, 37 cks.

**Ultramarine—**
Rotterdam, 29 cs. 1 ck

**Waste Salt—**
Hamburg, 1,016 bgs.

**White Lead—**
Ghent, 17 cks.
Antwerp, 2
Rotterdam, 15 O. & H. Marcus
,, 19

**Zinc Ashes—**
Boston, 40 brls.
Bordeaux, 6 cks. 227 bgs.

**Zinc Oxide—**
Antwerp, 40 cks. J. T. Fletcher & Co.
" 145 brls.
Rotterdam, 50 cks.

## HULL.

*Week ending September 17th.*

**Acetate—**
New York, 500 bgs. Wilson, Sons & Co., Ld.

**Acid—**
Stettin, 8 cks. Wilson, Sons & Co., Ld.

**Alum—**
Rotterdam, 142 cks. W. & C. L. Ringrose

**Aniline Salt—**
Flushing, 1 ck. Zeeland S. S. Co.

**Barytes—**
Antwerp, 21 cks. Bailey & Leetham
Bremen, 44 Veltmann & Co.
Rotterdam, 23 Hanger, Watson & Harris
" 48 Blundell, Spence & Co.

**Caoutchouc—**
Hamburg, 1 pkg. 10 cs. C. M. Lofthouse & Co.

**Chemicals** *(otherwise undescribed)*
Bremen, 1 cs. Veltmann & Co.
Antwerp, 1 ck. 7 pks. Wilson, Sons, & Co., Ld.
Dunkirk, 14 dms. "

**Colours—**
Rotterdam, 5 cks. 12 cs. 10 brls. Hutchinson & Son
" 1 Sissons Brs. & Co.
Stettin, 90 Wilson, Sons & Co., Ld.
Rotterdam, 4 5 pkgs. G. Lawson & Sons
Bremen, 4 Veltmann & Co.
" 50 cs. 16 G. Malcolm & Son
Flushing, 8 14 252 pks. Zeeland S. S. Co.
Antwerp, 132
Rotterdam, 2 cs. 19 61 W. & C. L. Ringrose

**Dyestuffs—**
**Alizarine**
Rotterdam, 1 cs. 15 brls. 1 ck. Hutchinson & Son
**Argols**
Bordeaux, 20 bgs. Rawson & Robinson
**Myrabolams**
Bombay, 1,434 bgs.

**Farina—**
Stettin, 219 bgs. Wilson, Sons & Co., Ld.
Ghent, 372 cs. "
Harlingen, 30 W. & C. L. Ringrose

**Glucose—**
Stettin, 5 cks. Wilson, Sons & Co., Ld.
Dunkirk, 20 dms. "

**Glycerine—**
Hamburg, 6 cs. Lofthouse & Saltmer
" 20 pks. 1 dm.

**Lead Acetate—**
Stettin, 34 cks. Wilson, Sons & Co., Ld.

**Phosphate—**
Ghent, 101 t.

**Pitch—**
Amsterdam, 13 cks. H. F. Pudsey

**Pyrites—**
Drontheim, 185 t. Wilson, Sons & Co., Ld.

**Sodium Nitrate—**
Rotterdam, 4 cks. Wilson, Sons & Co., Ld.

**Tallow—**
St. Petersburg, 25 cks.

**Tar—**
Copenhagen, 1 dm. Wilson, Sons & Co., Ld.
Uleaborg, 1,946 brls. J. Good & Sons

**Tartar—**
Bordeaux, 7 cks. Rawson & Robinson
Rotterdam, 1 G. Lawson & Sons

**Tartaric Acid—**
Rotterdam, 2 cks. G. Lawson & Sons

**Ultramarine—**
Rotterdam, 2 cks. J. W. Davis & Son

**White Lead—**
Rotterdam, 17 cks. Hutchinson & Son
" 13 Johnson Brs.
Antwerp, 37 Bailey & Leetham
Rotterdam, 10 Hanger, Watson & Harris
" 14 Sissons Brs. & Co.
" 12
" 5 J. T. Seddon

**Zinc Oxide—**
Rotterdam, 5 cks.

## GLASGOW.

*Week ending September 24th.*

**Acetate of Lime—**
New York, 405 bgs.

**Alkali—**
Antwerp, 1 ck.

**Alum—**
Rotterdam, 61 cks. J. Rankine & Son

**Barytes—**
Rotterdam, 23 cks. J. Rankine & Son

**Barytes Sulphate—**
Antwerp, 400 bgs. 14 cks.

**Colours—**
Rotterdam, 1 cs. 2 bxs. 7 brls. 15 cks. J. Rankine & Son
" 20 cks. G. & J. Boyd
Hamburg, 2

**Dyestuffs—**
**Alizarine**
Rotterdam, 19 cks. 1 bx.
**Aniline**
Rotterdam, 1 ck. J. Rankine & Son
**Extracts**
Antwerp, 9 cks.
**Fustic**
Jamaica, 1 t. 17 c. qnty. Wallace, Wilkie & Co.
" 47½ t. 5 c.
**Madder**
Rotterdam, 6 cks. J. Rankine & Son
**Sumac**
New York, 30 bgs.

**Glucose—**
New York, 348 brls.

**Paint—**
In transit, 2 brls. 3 cs.

**Potash—**
Montreal, 12 brls.

**Rosin—**
New York, 1,000 brls.
Pensacola, 800 T. O. Hunter & Co.

**Soap—**
New York, 351 bxs. 14 crts.
In transit, 1 cs.

**Soda—**
Rotterdam, 31 cks. J. Rankine & Son

**Tallow—**
New York, 245 hhds.

**Turpentine—**
Charlestown, 1,355 brls. L. & J. M'Lellan

**White Lead—**
Antwerp, 6 cks.
Rotterdam, 36 J. Rankine & Son

**Zinc Oxide—**
New York, 20 brls.

**Zinc White—**
Rotterdam, 50 cks. J. Rankine & Son

## TYNE.

*Week ending September 17th.*

**Asbestos—**
Rotterdam, 1 brl. Tyne S. S. Co.

**Colours—**
Rotterdam, 2 cs. 1 ck. Tyne S. S. Co.

**Cryolite—**
Copenhagen, 1 ck.

**Plumbago—**
Antwerp, 3 bgs. Tyne S. S. Co.

**Pyrites—**
Huelva, 1,736 t. Scott Brs.

**Salt—**
Harburg, 55 t. Clephan & Winch

**Saltpetre Salt—**
Harburg, 185 t. Clephan & Winch

**Stearine—**
Antwerp, 13 bgs. Tyne S. S. Co.

**Sulphur—**
Christiania, 1 bg.

**White Lead—**
Antwerp, 39 brls. Tyne S. S. Co.

**Zinc Oxide—**
Antwerp, 50 brls. Tyne S. S. Co.

## GOOLE.

*Week ending September 7th.*

**Dyestuffs—**
**Alizarine**
Rotterdam, 183 pkgs.
**Extracts**
Nantes, 535 cks.

**Dyestuffs** *(otherwise undescribed)*
Boulogne, 8 cks. 4 cs. 26 pkgs.

**Farina—**
Delfszyhl, 360 bgs.
Rouen, 150

**Glycerine—**
Rotterdam, 10 pkgs.

**Saltpetre—**
Rotterdam, 100 bgs.
Hamburg, 2 cks.

**Tartar—**
Rotterdam, 9 cks.

**Tartaric Acid—**
Rotterdam, 4 cks.

**Waste Salt—**
Hamburg, 147 cks.

## GRIMSBY.

*Week ending September 10th.*

**Chemicals** *(otherwise undescribed)*
Hamburg, 4 pkgs.

**Dyestuffs** *(otherwise undescribed)*
Dieppe, 30 cks.

**Farina—**
Hamburg, 50 bgs.

**Zinc Ashes—**
Antwerp, 27 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending September 21st.*

**Acetic Acid—**
Brisbane, 2 t. £64

**Acids—**
Malta, 4 cs. £10
Colombo, 6 c. 18
Pt. Elizabeth, 24 pkgs. 41

**Alkali—**
E. London, 3 c. £6

**Alum Cake—**
Calcutta, 67 cks. £119
Copenhagen, 20 t. 3 c. 50

**Ammonium Carbonate—**
Dunkirk, 18 c. £24

**Ammonium Chloride—**
Shanghai, 1 t. £66
Lisbon, 1 3 c. 36
Adelaide, 4 cks. 24
Batoum, 1 10 50
Danzig, 1 10
Varna, 2 3 70

**Ammonium Nitrate—**
Genoa, 3 cs. £10

**Ammonium Sulphate—**
Demerara, 15 t. £166
Cologne, 28 280
Treport, 20 200
Berbice, 27 254
Hamburg, 119 t. 9 c. 1,280

**Arsenic—**
Amsterdam, 13 cks. £33

**Bisulphide of Carbon—**
Rotterdam, 35 drs. £135

**Bleaching Powder—**
Cologne, 5 t. 1 c. £45
Copenhagen, 23 8 289

**Boracic Acid—**
Boston, 4 t. £155

**Borax—**
Brisbane, 7 kgs. 19 c. £32
Madras, 3 15

**Calcium Chloride—**
Sydney, 10 t. 12 c. £45

**Carbolic Acid—**
Bremen, 1 t. 15 c. £35
Calcutta, 25 drs. 26
Copenhagen, 5 cks. 23
Rotterdam, 25 71
Boston, 1 cs. 13
Hamburg, 1 12 13 cks. 56 drs. £302
Sydney, 8 18

**Caustic Soda—**
Fremantle, 4 c. £[illegible]
Brisbane, 11 [illegible]
Algoa Bay, 1 t. 10 [illegible]
Durban, 4 [illegible]
Madras, 11 [illegible]
E. London, 3 9 [illegible]

**Chemicals** *(otherwise undescribed)*
Melbourne, 1 cs. 10 pkgs. £[illegible]
Colombo, 4 [illegible]
Calcutta, 3 cks. [illegible]
Sydney, 5 [illegible]
Natal, 8 [illegible]
Barbadoes, 1 c. [illegible]
Shanghai, 11 [illegible]
Rangoon, 20 bgs. [illegible]
Madras, 25 kgs. [illegible]
Brisbane, 27 18 6 drs. [illegible]
Algoa Bay, 10 [illegible]

8 c. £73
3 20
15 120
1 cs. 11
cks. 77
3 25
10 83
5 45
10 74
2 3 kgs. 40
3 28
1 t. 2 203
2 17
, 1 10 248
5 cs. 33
3 31
3 24
15 123
13 106

**ts—**

51 cks. £730
10 kgs. 40
40 632

2 cs. £124

**il**

24 drs. £850

**ne**

54 cks. £261
60 545
216 1,125

20 drs. £228
129 758

**Dyes**

1 cs. £28

55 pkgs. £84
3 cs. 25
2 28
1 10
588 brls. 239

**Oil**

999 brls. £374

32 drs. £32

**lene**

1 ck. £15
50 bgs. 39

**Wax**

22 cs. £140
20 bgs. 80

20 cks. £18
122 t. 156
50 78
60 pkgs. 11

**Bases**

6 cks. £52

420 cks. £450
1,500 brls. 615
44 45
50 drs. 13
25 18
100 pkgs. 21
2, 1,700 900
50 23
40 13

6,000 brls. £2,325
52 40
112 cks. 550

25 drs. £290

**lphate—**

1 t. 10 c. £23
2 15 42
18 cks. 69

**Tartar—**

1 t. 5 c. £110

**nts—**

, 68 cks. 20 bgs. £350
8 c. 56 pkgs. 53
5 drs. 25
200 55
100 35
374 760 bgs. 2,708
20 100
100 500
117 57 pkgs. 98
5 t. 3 c. 68

**f Sulphur—**

2 t. £19
1 2 c. 13

**Manure—**

Berbice, 36 t. £375
Demerara, 15 166
Madras, 1 3 c. 16
Treport, 34 18 210
Genoa, 15 120
Rouen, 182 915
Bordeaux, 67 400
Landerneau, 360 3,600
Havre, 5 45
Hamburg, 469 15 4,785
Marseilles, 52 340
Treport, 54 17 330
Stettin, 49 5 200
Foxton, 5 30

**Muriate of Lime—**

B. Ayres, 2 t. 2 c. £11

**Nitric Acid—**

Jersey, 24 cbys. £44

**Oxalic Acid—**

Lisbon, 1 t. 7 c. £37

**Phosphide of Calcium—**

Constantinople, 1 c. £9
Melbourne, 7 cs. 42

**Phosphoric Acid—**

Berbice, 5 t. 2 c. £80

**Picric Acid—**

Calcutta, 3 c. £20

**Potash—**

Brisbane, 4 c. £10
Invercargill, 9 16

**Potash Salts—**

Townsville, 6 t. £788
Brussels, 14 c. 86

**Potassium Bichromate—**

Calcutta, 10 c. £22

**Potassium Cyanide—**

Shanghai, 5 cks. £27
Madras, 2 c. 27

**Potassium Prussiate—**

Lisbon, 10 c. £46

**Saltpetre—**

Melbourne, 3 t. £64
Adelaide, 5 108
Limon, 2 17 c. 60
Hamburg, 4 13 110
E. London, 5 6

**Sheep Dip—**

Algoa Bay, 25 cs. £70
B. Ayres, 10 cks. 1,125 drs. 525
Brisbane, 10 47
Cape Town, 5 t. 16 c. 100 210

**Soda—**

Adelaide, 3 t. 17 c. £27
Barbadoes, 10 4

**Soda Crystals—**

Penang, 1 t. £4
Calcutta, 11 c. 3
Cape Town, 1 13 6
Alexandria, 1 13 9
Natal 10 3

**Soda Salts—**

New York, 3 t. 10 c. £40

**Sodium—**

New York, 3 t. 1 c. £493

**Sodium Bicarbonate—**

Sydney, 20 t. £139
B. Ayres, 10 c. 6
Brisbane, 2 5 13

**Sodium Carbonate—**

Calcutta, 14 c. £6
Natal, 15 8

**Sodium Silicate—**

Hobart, 14 brls. £18

**Sodium Sulphate—**

New York, 50 t. £130

**Sodium Tartrate—**

Montreal, 1 t. 4 c. £70

**Sulphuric Acid—**

Aden, 10 cs. £9

**Tartaric Acid—**

Canterbury, 4 c. £22
Adelaide, 10 65
Sydney, 2 t. 10 kgs. 255
Melbourne, 2 218
Fremantle, 10 52

**Tartaric and Citric Acid—**

Brisbane, 5 c. £30

# LIVERPOOL.

*Week ending September 21st.*

**Alum—**

Melbourne, 5 t. £26
Beyrout, 2 10
Malta, 2 8 c. 20
Constantinople, 3 17 19
Samsoun, 1 5 6
Galatz, 1 18 11
Montreal, 8 16 49
Ibrail, 2 15 16
Alexandria, 12 72
Portland, O., 3 18

**Aluminous Cake—**

Calcutta, 11 t. 19 c. 2 q. £52

**Ammonium Carbonate—**

Corunna, 5 c. 1 q. £7
Genoa, 120 kgs. 201
Gothenburg, 19 1 33
Koenigsberg, 1 t. 33
Copenhagen, 3 1 100

**Ammonium Chloride—**

Galatz, 6 c. £9
New York, 10 8 q. 135
Antwerp, 7 3 8
Barcelona, 1 t. 3 37
Trieste, 19 3 35
Calcutta, 3 99
Philadelphia, 10 3 3 358
B. Ayres, 2 9 2 56
Rouen, 19 15

**Ammonium Sulphate—**

Valencia, 50 t. 11 c. £506
Hamburg, 90 945

**Antimony—**

Rio de Janeiro, 1 ck.

**Asbestos—**

Monte Video, 6 cs.
B. Ayres, 1
Demerara, 1

**Barytes—**

Montreal, 6 cks.

**Barytes Chlorate—**

New York, 10 c. £42
Newfairwater, 1 t. 5 82

**Bleaching Powder—**

Boston, 1,005 cks.
Copenhagen, 170
Hamburg, 393
Havana, 21
New York, 801 100 brls.
Odessa, 17
San Sebastian, 53
Venice, 20 29 pps.
Calcutta, 75 cs.
Copenhagen, 215
Ghent, 67
Halifax, 6 pkgs.
Naples, 36
Newfairwater, 43
Rouen, 14

**Boracic Acid—**

Hamburg, 3 c. £9

**Borax—**

B. Ayres, 1 t. 2 c. £32
Malaga, 1 30
Sydney, 2 61
Rotterdam, 2 14 1 q. 80
Sagua la Grande, 1 ck. 8
Norrkoping, 3 cks. 23
Havana, 5 47
Algoa Bay, 1 t. 30
Hamburg, 8 cks. 10 17 3 389
Halifax, 1 8
Rouen, 10 4 640
Ghent, 1 1 31
Antwerp, 1 19 59

**Caoutchouc—**

Axim, 1 trs.

**Carbolic Acid—**

Montreal, 1 t. 15 c. 3 q. £63
Rotterdam, 9 15 200
Hamburg, 40 13 4 2,138
Bremerhaven, 19 2 46
Antwerp, 16 20
Rouen, 1 5 24
Genoa, 1 2 2 49
Hong Kong, 8 2 6
New York, 8 6 1 358

**Caustic Soda—**

Adelaide, 35 dms.
Alicante, 30
Baltimore, 300 270 brls.
Barcelona, 230 72 100 cks.
Batoum, 114
Boston, 150 3 pkgs. 15
Calcutta, 114
Cartnagena, S, 15 30 brls.
Catania, 107
Ceara, 10
Cochin, 54
Corfu, 40
Galatz, 536 kgs.
Genoa, 70
Ibrail, 177
Malmo, 6
Malma, 7
Melbourne, 220
Montreal, 260
New York, 595 60 20
Odessa, 50
Pernambuco, 25
Portland, 100
Quebec, 80
Rio Grande, 100
Rotterdam, 56
Rouen, 85
St. Petersburg, 250
San Juan, 3
Santander, 29
Seville, 114 4
Smyrna, 101
Stettin, 42
Sydney, 30
Yokohama, 200
Antwerp, 20
Batavia, 65
B. Ayres, 100 pkgs.
Cadiz, 30
Corunna, 8 brls.
Fiume, 125
Galatz, 15
Halifax, 3 pkgs.
Hamburg, 5
Honolulu, 20
Malaga, 158 68
Maranham, 5
Messina, 35
M. Video, 150
Naples, 35
Newfairwater, 36
New Orleans, 51
Para, 60
Penang, 40
Philadelphia, 25
Rio de Janeiro, 20
Sourabaya, 60
Valencia, 10
Valparaiso, 100
Varna, 35
Vigo, 10

**Chemicals** (*otherwise undescribed.*)

Hiogo, 18 c. £30
Shanghai, 1 cs. 25
Trieste, 2 t. 10 82
Syra, 6 9
Beyrout, 6 9

**China Clay—**

Sydney, 10¼ t.
Bombay, 25
Boston, 645½ 880 cks.
Odessa, 5
Rio de Janeiro, 6

**Chloride of Iron—**

Bordeaux, 10 t. £38

**Coal Products—**

**Aniline Colours**

Montreal, 4 cks.

**Aniline Dye**

Barcelona, 7 dms.

**Aniline Oil**

New York, 42 dms.

**Aniline Salts**

Barcelona, 34 cks.
New York, 12 199 cs.

**Colours—**

Gijon, 1 bx.

**Copperas—**

Sansonia, 1 t. 9 c. 3 q. £3
Constantinople, 3 11 3 7
Ineboli, 4 3 1 7
Alexandria, 12 15 1 24
San Francisco, 26 11 2 55
Piræus, 7 7 2 22
Bahia, 6 10 2 15
Smyrna, 5 5 11
St. John's, N.B., 5 10 15

**Copper Sulphate—**

Constantinople, 2 t. 10 c. £36
Palermo, 10 7
Brisbane, 30 480
Victoria, B.C., 1 15
Antwerp, 6 15 2 q. 96
Rouen, 13 1 196
Syra, 3 6 3 79

**Disinfectants—**

Hamburg, 10 c. £15
Rouen, 1 t. 7 9

**Dried Blood—**

Montreal, 2 t. 5 c. £30

**Ferric Oxide—**

Hong Kong, 6 c. 3 q. £5

**Flowers of Sulphur—**
Iquique, 20 t. 14 c. 2 q. £187

**Gypsum—**
New York, 36 t. 15 c. £135

**Lead Acetate—**
Portland, O., 5 c. £8
Calcutta, 1 t. 12 44

**Lime—**
C. C. Castle, 5 cks.

**Magnesia—**
Havana, 12 cs.

**Magnesium Carbonate—**
Mexico City, 5 cs.

**Magnesium Chloride—**
Corunna, 3 cs

**Magnesium Sulphate—**
Rio de Janeiro, 50 kgs.

**Manure—**
St. Nazaire, 930 t. 3 c. 2 q. £4,602
Bordeaux, 73 3 2 470
Genoa, 151 695
Havre, 502 8 2 2,725
Valencia, 70 200
Nantes, 10 1 35

**Nitrate of Iron—**
Montreal, 7 t. 7 c. 2 q. £25

**Ochre—**
Hamburg, 135 bgs.
Kingston, 13 cks.
Rotterdam, 13

**Oxide of Iron—**
Bonny, 1 t. £16

**Paint—**
Amsterdam, 6 kgs. 6 dms.
Baltimore, 305 cks.
Belize, 5
Beyrout, 50
Bordeaux, 1 bx.
Callao, 6 48
Canea, 2 brls.
Cienfuegos, 2
Curacao, 30
Galata, 100
Gr. Bassa, 10
Hamburg, 11
Havana, 25
Jaffa, 2
Lagos, 50
Mollendo, 3 cs. 3
M. Video, 15 1
Puerto Plata, 5
Rey Beach, 1
Rio de Janeiro, 15
Cape Town, 5 cs.
Cephalonia, 64
Cienfuegos, 3
Gibraltar, 79
Iquique, 140
Kingston, 5
Lagos, 1
Montreal, 1 cs. 1
O. Calabar, 20
Santa Cruz, 80
Shanghai, 158
Trieste, 8

**Painters' Colours—**
Boston, 4 cs. 6 fkns.
Calcutta, 3 cks. 21 kgs. 280 dms.
Constantinople, 124
Kingston, 133 13 brls.
Mollendo, 6 3
Nassau, 8 60
Patras, 2
Philadelphia, 100
Pt. Limon, 8
Quebec, 1 2 dms.
Sydney, 19 200
Valparaiso, 50 50 brls.
Vera Cruz, 2 cs. 13 crts.
Yokohama, 20
Alexandria, 10
Baltimore, 432 cks.
Belize, 3 cs. 3 24
B. Ayres, 25 crts. 27
Hamburg, 37
Melbourne, 1 bx. 1 dm. 23
New York, 15 cs.
Pernambuco, 20
Pt. Natal, 4 4 cks.
St. John's, Nfld., 5 frkns.
Valparaiso, 5 cs.
Vera Cruz, 1

**Paraffin Wax—**
Odessa, 8 cks. 397 bgs.
Constantinople, 2 bls.

**Phosphorus—**
Vera Cruz, 5 cs. £55
M. Video, 2 22
Santiago de Cuba, 2 28
Shanghai, 35 350
*Hiogo,* 40 514

**Picric Acid—**
New York, 3 cks. £55

**Pitch—**
Calcutta, 4¾ t.
Genoa, 99 13 c.
Valparaiso, 3 9

**Plumbago—**
Valparaiso, 5 cks.

**Potassium Bichromate—**
Portland, O., 9 c. £20
Calcutta, 3 7

**Potassium Chlorate—**
Hong Kong, 1 t. £56
Vigo, 10 c. 28
Corunna, 10 28
Rotterdam, 1 5 71
San Francisco, 2 10 141
Genoa, 5 250
Gothenburg, 5 10 263
Calcutta, 6 15
Antwerp, 2 111
St. Petersburg, 13 712
Pasages, 3 6 1 q 150
Tampico, 2 5
New York, 7 10 383
Boston, 11 15 585
Copenhagen, 1 13 84
Stettin, 13 5 747
Alexandria, 10 25
M. Video, 6 2 19
Hiogo, 25 1,347
Chicago, 3 2 160
Rouen, 4 6 3 241

**Potassium Silicate—**
Valencia, 16 t. 18 c. 1 q. £101

**Salt—**
Baltimore, 226 t.
Barbadoes, 698 sks.
Boston, 400
Brisbane, 400
E. London, 348
Gothenburg, 341
Lagos, 400
Monrovia, 5
Montreal, 730¾
Mossel Bay, 20
New Orleans, 465
Newport News, 249
Para, 100
Rangoon, 2 19 c.
Rio de Janeiro, 1 1 50 cs.
Rotterdam, 254
St. John's, Nfld., 5
Sierra Leone, 50
Antwerp, 553
Axim, 5
Boma, 26¾
Brass, 899
B. Ayres, 25
Calcutta, 1,812
C. C. Castle, 25
Dulruth, 65
Ghent, 444
Iceland, 82
Lagos, 20
Mayumba, 5
Marstrand, 300
Old Calabar, 40 4
Rio del Rey, 25
Trangesund Wyburg, 600 t.
Utaka, 28 t.
Valparaiso, 1 1 c.

**Salt Cake—**
Baltimore, 302 t. 6 c. £715
Philadelphia, 245 624

**Saltpetre—**
Syra, 3 t. 6 c. 3 q. £69
Bahia, 19 21
Pernambuco, 1 8 2 32
Portland, O., 1 19 3 42
Halifax, 12 2 13

**Sheep Dip—**
M. Video, 2 t. 10 c. £68

**Soap—**
Algoa Bay, 6 cs.
Amsterdam, 100
Antwerp, 532
B. Ayres, 52
Cairo, 20 bxs.
Calcutta, 1,250 bdls. 8 1 ck.
Callao, 16
C. C. Castle, 140 bxs. 10
Curacao, 525
Durban, 350
E. London, 500
Gr. Canary, 1,399
Hamburg, 9 dms.
Havre, 120
Iquique, 30
Jaffa, 4
Kingston, 1,780
Kurrachee, 50
Las Palmas, 290
Lucea, 60
Malma, 8
Morant Bay, 25
Nassau, 21
N. York, 1 ck. 350 55 50 tcs.
Pt. Natal, 850 85
Rangoon, 2
Rotterdam, 1,300
St. Croix, 200
,, John's, Nfld., 442 1
,, Lucia, 121
,, Thomas, 500
Salonica, 7
Santa Cruz, 200
Shanghai, 1,538
Toronto, 500
Trinidad, 1
Valparaiso, 1
Accra, 15
Alexandria, 11
Ambriz, 50
Assinee, 25
Axim, 43
Banoha, 40
Batanga, 50
Benin, 300
Brass, 140
Cabenda, 100
Cameroons, 100 200
Clarence, 102
Copenhagen, 40
Demerara, 30
Genoa, 150
Gibraltar, 100
Malta, 40
Mexico City, 1
Mossel Bay, 75
N. Kombe, 20
Old Calabar, 225
Pt. Said, 20
Rouen, 27
Samarang, 2
Warri, 856

**Soda Alkali—**
Odessa, 100 brls.
Buffalo, 60
Genoa, 160
Melbourne, 40
Newcastle, N.S.W., 40 brls.
Sydney, 150

**Soda Ash—**
Boston, 506 cks. 1,444 bgs.
B. Ayres, 250 brls.
Carthagena, S., 30
Genoa, 201
Montreal, 84 84
Rio de Janeiro, 110 420
Smyrna, 350
Stettin, 20
Baltimore, 326 1,015 141 pkgs.
Calcutta, 55
Ceara, 30 brls.
Maranham, 60
Melbourne, 39
M. Video, 100
N. York, 2,625 2,400 265 tcs.
Philadelphia, 339 400
Sydney, 33
Varna, 50 brls.
Yokohama, 100

**Soda Crystals—**
B. Ayres, 30 cks.
Montreal, 167 brls.
New York, 390
Odessa, 40
Oporto, 14
Pt. Elizabeth, 60
St. John's, Nfld., 20 89 kgs.
Boston, 280
Calcutta, 34
Callao, 25
Constantinople, 70
Galatz, 20
Sourabaya, 150
Toronto, 500
Valparaiso, 40

**Sodium Arseniate—**
New York, 20 cks.

**Sodium Bicarbonate—**
Amsterdam, 20 kgs.
Constantinople, 20
Galatz, 40
Half Jack, 90
Lisbon, 26
Odessa, 420
St. John's, Nfld., 40
Stettin, 130 12 brls. 2 cks.
Algiers, 40
Calcutta, 50
Ghent, 16
Hamburg, 20
Havre, 60
Leghorn, 12
Marseilles, 45
Melbourne, 124
Nantes, 60
Santander, 40
Seville, 50 12 5
Sydney, 80

**Sodium Carbonate—**
Boston, 84 brls.
New York, 112
Rouen, 50 bgs.

**Sodium Chlorate—**
Genoa, 10 kgs.
Hamburg, 10
Rotterdam, 50
St. Petersburg, 25

**Sodium Hyposulphite—**
Portland, 25 kgs.

**Sodium Silicate—**
Callao, 10 brls.
Bilbao, 20
Carthagena, 30
Malaga, 17 cks.
Newcastle, N.S.W., 4 brls.
Para, 23

**Sodium Sulphate—**
Kurrachee, 10 dms.
Portland, 76 brls.

**Sulphur—**
Iquique, 45 t.
Ghent, 20 2 c.
Boston, 100 4
Rouen, 5
St. John's, N.B., 1 5 2 q.
Halifax, 15 3
Demerara, 9 9 3
Rouen, 6
Iquique, 75 2 3

**Superphosphate of Lime—**
Nantes, 180 t. 3 c. 2 q.

**Tallow—**
Axim, 15 cks.
Barbadoes, 50 bxs
B. Ayres, 1
Bilbao, 61 brls.
Half Jack, 1
Shanghai, 1

**Tar—**
Galatz, 60 brls.
Sherbro, 10
Trieste, 7
Melbourne, 4 cs.

**Turpentine—**
Salonica, 3 brls.
Shanghai, 19 dms.

**Varnish—**
Bilbao, 6 brls.
Gibraltar, 1 cs.
Montreal, 12 5 cks.
Naples, 5
New York, 4

**Waste Salt—**
Bombay, 7 t. 2 c. 2 q.

**White Lead—**
Chittagong, 1 ck.
Melbourne, 4 cks. 150 kgs.
Calcutta, 3

**Zinc Chloride—**
Bombay, 6 t. 17 c. 2 q.
Colombo, 2 10
Malaga, 1 1 1

## HULL.

*Week ending September 17th*

**Ammonia—**
Antwerp, 81 bls

**Benzoline—**
Ghent, 20 cks.

**Bleaching Powder—**
Boston, 120 cks.
Gothenburg, 14
Stettin, 88

**Caustic Soda—**
Danzig, 150 dms.
Gothenburg, 19 cks.
Helsingfors, 1
Riga, 300 dms.

**Chemicals** (*otherwise undescri*
Amsterdam, 100 kgs. 60 pks.
Antwerp, 5 cs. 6 cks.
Bergen, 4
Boston, 100
Constantinople, 2 4
Copenhagen, 2 50
Christiania, 24 cs. 3 56
Danzig, 71 180
Flushing, 12
Ghent, 1
Gothenburg, 4 2
Hamburg, 90 5 214 10

Harlingen, 10
Libau, 50
Odessa, 5
Ronen, 15
Rotterdam, 99
Riga, 4 260
Stettin, 48
St. Petersburg, 15 25
Stockholm, 100 10
Wyburg, 60 11 cs.

**Cottonseed Oil—**
Amsterdam, 101 c.
Antwerp, 1,371
Bremen, 221
Flushing, 302
Hamburg, 1,276
Rotterdam, 2,259
Stettin, 163

**Creosote—**
Amsterdam, 50 cks.
Antwerp, 200
Bremen, 50
Copenhagen, 20
Hamburg, 3
Odessa, 150
Rotterdam, 75 350 bls.

**Dyestuffs** (*otherwise undescribed*)
Boston, 7 cks.
Christiania, 4
Danzig, 1
Rotterdam, 1
Stettin, 1 bl. 1
St. Petersburg, 23 2 cs.

**Farina—**
Rotterdam, 8 cks.

**Guano—**
Dunkirk, 20 t.

**Linseed Oil—**
Bergen, 46 c.
Copenhagen, 21
Christiania, 415
Drontheim, 20
Gothenburg, 3
Helsingfors, 242
Hamburg, 6
Rotterdam, 102
Stettin, 51

**Manure—**
Dunkirk, 15 t.
Hamburg, 81

**Mineral White—**
Antwerp, 50 bgs.

**Naphtha—**
Copenhagen, 14 cks.

**Ochre—**
Amsterdam, 20 cks.
Copenhagen, 4
Dunkirk, 1

**Painters' Colours—**
Amsterdam, 24 pks.
Antwerp, 8 cs. 23 cks.
Bremen, 2
Bergen, 25 dms.
Boston, 50 30 pkgs.
Constantinople, 12
Christiansund, 64 kgs.
Copenhagen, 2 1
Christiania, 90
Dunkirk, 2
Drontheim, 1 cs. 3 dms.
Ghent, 12
Gothenburg, 2 3
Hamburg, 10 41
New York, 158
Odessa, 105
Rotterdam, 1 1
Reval, 1
Stettin, 106
St. Petersburg, 60
Stockholm, 5 cs. 5
Wyburg, 10

**Pitch—**
Antwerp, 125 t.

**Sheep Dip—**
Hamburg, 40 cs.

**Size—**
Flushing, 19 cks.
Hamburg, 3

**Soap—**
Christiania, 45 cs.
Helsingfors, 25
Rotterdam, 20

**Superphosphate—**
Helsingfors, 200 t.

**Tallow—**
Amsterdam, 7 cks.
Bremen, 1 kg.

**Tar—**
Gothenburg, 150 cks.
Odessa, 50

**Turpentine—**
Drontheim, 2 cks.

**Varnish—**
Antwerp, 8 cks.
Bremen, 2
Drontheim, 1
Gothenburg, 10 cs
Hamburg, 1
Harlingen, 2
Rotterdam, 14

## GLASGOW.

*Week ending September 22nd.*

**Ammonia—**
B. Ayres, 17¾ c. £130

**Ammonium Bichromate—**
Rouen, 10¼ c. £26

**Ammonium Chloride—**
Bilbao, 4 t.

**Ammonium Sulphate—**
Demerara, 67 t. 16½ c. £715
Genoa, 54 15¾ 550
Antwerp, 20 200
Bilbao 32 320

**Asbestos—**
Calcutta, 5¾ c. £20

**Bichrome—**
Rouen, 19 t. 19½ c. £722
Bombay, 1 1 43
Antwerp, 30 996

**Bleaching Powder—**
Melbourne, 6 t. 2 c. £50
Bombay, 3 9½ 36

**Borax—**
Montreal, 3 t. 13¾ c. £100

**Castor Oil—**
Adelaide, 79 glns. £21

**Colours—**
Quebec, 14 t. 6 c. £102
Havana, 1 1

**Copperas—**
Bombay, £97

**Creosote—**
Demerara, 35 t. 8 c. £56

**Dyestuffs—**
**Extracts**
Melbourne, 14 c. £34. 7s.
Montreal, 11 t. 12½ 322
**Patent Indigo**
Melbourne, 3 t. 10 c. £135

**Dyestuffs** (*otherwise undescribed*)
Calcutta, 1 c. £24

**Farina—**
Antwerp, 4 t. 17 c. 65
Italy, 6 80

**Guano—**
Bilbao, 10 t. 2¾ c. £62

**Linseed Oil—**
Cape Colony, 1 t. 5 c. £34
Bombay, 16½ £19. 17s.
Montreal, 4 6 80
Antwerp, 2 1¾ 30

**Litharge—**
Amsterdam, 9¾ c. £8

**Magnesium Sulphate—**
Melbourne, 11 t. 2½ c. £43
Calcutta, 7 10 37
Oporto, 11 4 42

**Manure—**
Demerara, 34 t. 10 c. £372

**Naphtha—**
Rouen, 12 t. 8½ c. £300

**Nitrate of Lead—**
Montreal, 2 t. 3¾ c. £39. 16s.

**Paint—**
Trinidad, 4¼ c. £20
Demerara, 3 t. 7½ 62
Hong Kong, 2 9¾ £39. 18s.
Natal, 1 3 35
Bombay, 9 3¼ 104
Bilbao, 1 12 38 14
New York, 7 10½ 134
Antwerp, 2 15¾ 35
B. Ayres, 1 3½ 23

**Painters' Colours—**
Demerara, 3 t. 5½ c. £65
Straits, 10 1¾ 132
Adelaide, 2 11¾ 54
Cape Colony, 15¼ 20
Colombo, 8 14½ 98
Madras, 3 4 33
M. Video, 3 18¾ 64

**Paraffin Wax**
Japan, 18 t. 13¾ c. £494
Rouen, 5 17½ 182
Genoa, 1 31
Italy, 11,676 lbs. 96
Hungary, 3 5 101
Bilbao, 19¾ 30

**Phosphate Meal—**
Venice, 19 t. 11 c. £55

**Pitch—**
Oporto, 150 t. £160
Amsterdam, 250 375

**Potassium Bichromate—**
Japan, 5 t. 1½ c. £201
Italy, 5 10¼ 183

**Potassium Prussiate—**
Montreal, 10¾ c. £48
Rouen, 10 t. 14¼ 595
New York, 635
Quebec, 113

**Rosin Oil—**
Philadelphia, 2 t. 3 c. £22. 14s.

**Salt Cake—**
Antwerp, 260 t. £520
Antwerp, 520 1,040

**Soap—**
New York, 3 t. 4¼ c. £49
Barbadoes, 1 15 30
Trinidad, 12 10 190
Demerara, 3½ £22. 14s.
Bombay, 1 7½ 28 15

**Sodium Bichromate—**
Genoa, 5 t. 13½ c. £188
Oporto, 1 12 53

**Sodium Phosphate—**
Rouen, 2 t. 17 c. £38

**Sulphur—**
Demerara, 5 t. 1½ c. £42

**Superphosphate—**
Venice, 10 t. £50

**Tallow—**
Demerara, 19 c. £32

**Tar—**
Bombay, £20
Calcutta, 42

**Tar and Pitch—**
Madras, 16 t. £29
Calcutta, 21 43

**Turpentine—**
Bombay, 1 t. 4 c. £22

**Varnish—**
Cape Colony, 42½ gls. £22. 18s.
Colombo, 75 30

**White Lead—**
Sydney, 2 t. 2½ c. £42
Cape Colony, 3 18¾ 74
Seville, 3 3¼ 48
Quebec, 24 19½ 374
B. Ayres, 19½ 21

## TYNE.

*Week ending September 17th.*

**Alkali—**
Hamburg, 1 t. 18 c.
Rotterdam, 11 3
Riga, 2 17
Reval, 35 3

**Alumina Sulphate—**
Rouen, 5 t. 14 c.
Montreal, 14 10

**Ammonium Carbonate—**
Montreal, 1 t.

**Antimony—**
Barcelona, 1 t. 4 c.
Montreal, 1

**Arsenic—**
Barcelona, 2 t. 1 c.
Ancona, 10

**Barium—**
Rouen, 15 t. 9 c.

**Barytes—**
Hamburg, 128 t. 15 c.
Rouen, 5
Ancona, 163 14

**Bleaching Powder—**
Hamburg, 51 t. 9 c.
Antwerp, 64 8
Bergen, 5 9
Christiania, 11 4
Odense, 4 18
Aalborg, 6
Horsens, 2 18
Rotterdam, 9 15
Riga, 10 8
Ghent, 2
Gothenburg, 5 12
Libau, 30 12
Ancona, 5 4
Copenhagen, 93 8
Montreal, 5 7

**Carbolic Acid—**
Odense, 3 t. 1 c.

**Caustic Soda—**
Hamburg, 18 t. 17 c.
Antwerp, 10 14
Rouen, 13 6
Christiania, 3
Riga, 24 19
Ghent, 2 18
Copenhagen, 2 3
Ancona, 11
Montreal, 16 14

**Copperas—**
Bergen, 18 t. 15 c.

**Litharge—**
Antwerp, 2 t. 4 c.
Riga, 7 3
Copenhagen, 1 8
Montreal, 10

**Magnesia—**
Hamburg, 5 c.
Rotterdam, 7
Montreal, 10

**Manure—**
Barcelona, 1 t. 6 c.

**Ochre—**
Montreal, 4 t.

**Paint—**
Hamburg, 15 lbs.
Antwerp, 10 c.

**Phosphorus—**
Barcelona, 4 t. 6 c.

**Pitch—**
Hamburg, 5 t.

**Soap—**
Hamburg, 7 t. 18 c.

**Soda—**
Antwerp, 5 t. 10 c.
Ancona, 19
Jersey, 31
Quebec, 50 2
Bergen, 7 14

**Soda Ash—**
Rotterdam, 4 t. 2 c.
Riga, 9 19
Gothenburg, 30 2

**Sodium Sulphate—**
Barcelona, 9 c.
Christiania, 6 t.

**Sulphur—**
Antwerp, 5 t.
Christiania, 50
Rotterdam, 40
Riga, 40
Ghent, 5
Montreal, 30

**Tallow—**
Hamburg, 14 c.

**White Lead—**
Copenhagen, 2 t. 1 c.
Montreal, 85 16

## GRIMSBY.

*Week ending September 10th.*

**Chemicals** (*otherwise undescribed*)
Dieppe, 11 cs. 5 cks. 127 pkgs.
Hamburg, 46 dms. 21 80

**Coal Products** (*otherwise undesc'd.*)
Dieppe, 183 cks.

**Dyestuffs** (*otherwise undescribed*)
Dieppe, 6 cks.

**Manure—**
Esbjerg, 1,700 bgs.

## GOOLE.

*Week ending September 7th.*

**Chemicals** (*otherwise undescribed*)
Hamburg, 100 cks.
Rotterdam, 56

**Dyestuffs** (*otherwise undescribed*)
Boulogne, 2 cs.
Hamburg, 1 21 cks.

**Manure—**
Antwerp, 131 bgs.
Rotterdam, 450

**Pitch—**
Antwerp, 208 t.

# PRICES CURRENT.

WEDNESDAY, Sept. 28th, 1892.

Prepared by Higginbottom and Co., 116, Portland Street, Manchester.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids:—** | | | | |
| Acetic, 25 °/₀ and 40 °/₀ | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | | 50/- | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 °/₀) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ( ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 15 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 1 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 10 | 2 | 6 |
| ,, ,, (grey) Hull | ,, | 10 | 3 | 9 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 9 | 17 | 6 |
| ,, Liquor, 7 % | ,, | 3 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes:—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8¾ |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 9½ |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 8 |
| ,, 50/90 ,, | ,, | 0 | 1 | 4 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 5¾ |
| ,, (crude 60°) | per gallon | 0 | 1 | 6 |
| Creosote (ordinary) | ,, | 0 | 0 | 1½ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 0 | 11 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 43 | 17 | 6 |
| ,, Sulphate | ,, | 15 | 5 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 12 | 6 |
| ,, Litharge Flake (ex ship) | ,, | 14 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, (brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| ,, Nitrate | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 6 | 0 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 4 | 0 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 4 | 0 |
| **Oils:—** | | | | |
| Cotton-seed | per ton | 20 | 0 | 0 |
| Linseed | ,, | 20 | 0 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 7½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 12 | 6 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10¼ |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 | 0 |
| Silver (metal) | per oz. | 0 | 3 | 2½ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 7 | 6 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 6 | 5 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 18 | 10 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 15 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Borate (Borax) | net, per ton | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | net pr. ton (10 ton lots) | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, (10 ton lots) | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 15 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 4½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¾ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 16 | 6 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7 |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7½ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone: Best Quality (nominal) | ,, | 5 | 0 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 95 | 0 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 18 | 7 | 4 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# HEMICAL TRADE JOURNAL

AND

## OIL, PAINT and COLOUR REVIEW.

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hemical Works, New Mills, near Stockport.—Re John and Co., manufacturing chemists, drysalters, &c.—Under Assignment.—Important Picemeal Sale of Chemical Manu- Plant, Extensive Stock-in-Trade of Chemicals and Dry- Carts, Lurries, Phæton, Office Furniture, and Effects.

RD RUSHTON and SON are in receipt of ctions from the Trustee herein to SELL BY AUCTION, , October 17, 1892, on the premises as above, the whole of ICAL MANUFACTURING PLANT, Machinery, Carts, ck-in-Trade, and Effects. The Plant includes single-flued , 13ft. long, 5ft 6in. diameter; vertical fire box boiler, h, 3ft. 6in. diameter; steam pumping engine, 6in cylinder, , 3in. ram, by W. Allan; one 4in. ram force pump and gear- of six cast-iron charcoal retorts, each 7ft. long, 3ft. 6in. meter, with ranges of 12in., 10in., and 6in. condenser cast and wrought iron cavity and other boiling pans m 3ft. to 6ft. diameter, and from 3ft to 8ft. deep, some ead coils; one 100-gallon enamelled circular cavity pan, n condenser, 8ft. by 6ft. by 4ft deep, with 3in. lead coil; n cistern, 4ft. square; 4 wrought-iron charcoal cisterns, n. by 30in., and two ditto 53in by 34in. by 30in.; swivel jib radius; 60 large circular, oval, and square wood vats, s; eight platform weighing machines, three iron hoisting hand trucks, grindstone, four lengths of new 3in. lead two new 1½in. lead coils, 400 basket carboys, n size casks, 200 40-gallon, and 100 160-gallon casks, ng plant, and general effects; two 3-ton and one 2-ton es, two boxcarts, capital one-horse phaeton, by Roberts, ; set of silver-mounted phaeton harness, horse sheets, ess, and one two-knife hay chopper. First-class chemical L. Oertling, counter scales, chemical testing appliances, als in about 300 bottles, and contents of a well-fitted Office Furniture, including mahogany writing table, 3ft. 6in., with loose double slope and four drawers; chest and cupboard, with mahogany top; painted and grained d cupboard under 7ft. high, 4ft. wide; fire and burglar 31in. by 25in. by 24in. back to front; pigeon-hole racks, office utensils. Extensive Stock of Manufactured Chemicals, , &c., including 151 cwt. alum, 53 cwt. arseniate of soda, tate of lime, 16 carboys ammonia, 960lb; 16 casks castor 19 carboys muriatic acid, 45cwt. size, 40cwt. iron liquor, non resin, 5cwt. brown sugar, 100 gallons' cylinder, olean, cottonseed oils, 12½ Winchesters of nitric acid, sulphuric ammonia, and chloric acid; 56lb. oxalic acid, 4cwt. wt. arsenic acid, 1cwt. nitrate of iron, ultramarine blue, arina, caustic soda, solution, and other various chemicals, o commence immediately on the close of the sale of the hich will be about 11-30 o'clock. On view to holders of riday and Saturday, October 14 and 15, 1892. Descriptive nay be had on application, from the Auctioneers, 13, eet, Manchester; and other information from Messrs. dman and Co., chartered accountants, 88, King Street, ; or from Messrs. Crofton and Craven, Solicitors, 36, Street, Manchester.

## CURRENT TOPICS.

### THE MINERAL OIL TRADE OF SCOTLAND.

IF we were to say that the Scottish mineral oil trade was in a bad way, we should undoubtedly be met with a prompt rejoinder to the effect that "Queen Anne was dead," and justly so. But despite the all prevailing cognisance of this fact, the present position is one which can hardly be allowed to pass wholly uncommented upon.

The absence of dividends among companies which have generally been well to the fore in the matter of profits has gradually become quite familiar with a kind of familarity which is calculated to breed concern rather than contempt, especially when followed by balance sheets, which in addition to showing no profits, present in many cases a very unwelcome item in the form of an unpleasantly large deficit, suggestive of inroads upon capital.

It would be a very difficult matter to analyse all the various influences which have led to the present crisis, and considering the *status* in general it would perhaps be waste of time to do so.

Whatever good there was to be derived from combination seems to have been used up, though co-operation in almost every phase and quarter has been resorted to.

Only a few days since affairs were in a measure patched up by making a reduction of one half-penny per pound in the price of paraffin scale, and candles, so as, if possible, to induce business, upon the tacit understanding that buyers would confine their purchases to the association producers. This understanding was not binding, however, and judging by the stagnation which continues to prevail, purchasers have got over the matter by not buying at all.

The knowledge of the fact that with regard to scale, producers can no longer keep swelling their stocks, but must sell, makes it well nigh impossible to maintain a hard price. To rebate a halfpenny from the present figure is a great concession, but we fear the nethermost depths have not yet been touched, the one fact which stands out before all others in the mind of the buyer is—sell they must—and he will hold his hand till the very last moment. It is only to be hoped that immediate requirements will enable sellers to avert the necessity of descending to the direst resources.

Of the future who will venture to prophesy? The rivalry of foreign mineral oil is stated to have been one of the chief causes of the disaster which has overtaken the Scottish industry, and such being the case, the outlook foreshadowed by recent geognostic speculation is hostile to the well-being of this already declining industry. It is best, we think, to leave the future to take care of itself, and to give every incentive to those who are endeavouring to overcome the exigencies arising from the critical turn which things have lately taken

THE INSTITUTE OF CHEMISTRY.

Almost at the hour of our going to press an extraordinary general meeting of the Institute of Chemistry is being held. The chief object of the meeting is to obtain the sanction of the members to the proposal of the Finance and Office Committees, to expend a sum not exceeding one fourth of the invested capital of the Institute, for the purpose of securing premises upon which the examination of the Institute can be efficiently conducted. Judging from the result of the general enquiries which have been made, there is a good prospect of this proposal becoming *un fait accompli*.

It has been said that the leopard cannot change its spots, but happily the cuticular disfigurations, so to speak, which have marked some of the past proceedings of the Institute appear to be differently constituted to those of the proverbial leopard, and they seem likely to gradually disappear altogether, under the beneficial influences which have lately been brought to bear on the Council. We hope that the efforts of the committee will meet with cordial support from the members, who should evince a becoming interest in a movement which bids fair to remove one of the chief complaints made against the Institute.

## THE MERSEY AND IRWELL JOINT COMMITTEE.

THE usual monthly meeting of the above named committee was held on Monday last, Oct. 3rd., at the Committee's Offices, Moseley Street, Manchester, the Right Hon. J. T. Hibbert M.P., presiding.

THE MOSSLEY DEPUTATION.

A deputation was received from the Mossley Corporation, consisting of Mr, John Mayall, Mr. John Buckley, and Mr. Joseph Hyde (town clerk).—Mr. Hyde said that the Corporation of Mossley were desirous of carrying out the provisions of the Act with regard to the pollution of rivers, and were anxious to carry out the wishes of that Committee. In November last year a meeting was held of the authorities of Mossley, Ashton-under-Lyne, Stalybridge, Dukinfield, Hurst, and Audenshaw, to see if a joint scheme could be devised. A second meeting was held, but they were unable to arrive at any result. Mossley then decided on a scheme of its own. A sub-committee was appointed to inspect the working of schemes in other places, and a report was made to the Council. A Rivers Pollution Prevention Committee was appointed in June last. Since then they have been looking out for suitable sites for construction of sewage works. Two plots of land have been offered, and on Wednesday 5th inst. the committee would meet the owner of one of the plots to see if terms of purchase could be arranged. A preliminary report, with plans, had been prepared by the engineer, to be submitted to the Local Government Board. That was the position of matters to-day. Under the circumstances, he thought they had so far done what could reasonably be expected from them. They were prepared to complete the work as soon as possible.

The chairman said that all the Committee desired was to see that authorities were proceeding in a *bona-fide* way with schemes which would prevent the pollution of the rivers. He thought they were prepared to grant three months to the Mossley Corporation for the maturing of their scheme.

The suggestion of the Chairman was adopted by the Committee.

DEPUTATION FROM FAILSWORTH.

Mr. Thomas, Mr. Wild, Mr. Taylor (clerk), and Mr. C. J. Lomax (engineer) appeared before the Committee as representing the Failsworth authority. Mr. Lomax applied for an extension of time in relation to the carrying out of sewage works. Plans were prepared as early as 1889, before any pressure was brought to bear on the Board, the cost of the scheme being estimated at £12,000. They had to wait nearly 12 months before hearing the decision of the Local Government Board. The Local Government Board asked them if it were possible to buy more land. In effect that meant that the scheme would not be passed without they got the additional land. They then considered another scheme, but after long negotiations with regard to certain land they found that the vendor had no proper title to it, and so they had had to consider a third site.

The Chairman inquired how long it would take to mature the cheme.

Mr. Lomax said it would take six months at all events. On behalf of the Board, and also of the Gorton Board, he would like to ask what amount of storm-water should be allowed to enter the sewers. In the case of the Moss Side scheme the Ship Canal Company had insisted on regulations which, if they applied to Failsworth and Gorton, would cause them to extend their sewers to double their present capacity.

The Chairman said the matter was not one for the Committee, but for the Local Government Board.

Mr. Lomax said if they were opposed by the Ship Canal Company it would involve more delay.

Mr. Alderman Joseph Thompson said Moss Side was in quite a different position from Failsworth and Gorton. Moss Side was entirely covered with buildings, whereas in Failsworth there was a great deal of unoccupied land.

An extension of three months was granted by the Committee.

Before the deputation retired the Chairman expressed the hope that they would make what haste was possible with their scheme. The Committee were bound to see that the law was carried out, and that each district bore its fair share of the burden.

THE RADCLIFFE DEPUTATION.

The Radcliffe Local Board was represented by Mr. Samuel Walker, Mr. Richard Walker, and Mr. James Sharples (clerk). Mr. S. Walker said the Radcliffe Board had taken all the action possible up to the present time, and they were going foward with their scheme as rapidly as they could. They had made arrangements for the purchase of land, but at the present moment they were waiting a decision of the Court of Chancery. Their arrangements with the trustees of the Earl of Wilton were that not later than the 21st December they should be in possession of the land, and then they would be prepared to see about constructing their sewage works. They had funds in hand to the extent of about £10,000. to enable them to proceed with the work. The intention was to put down settling tanks and filtration beds on the land they were acquiring. Their own engineer had drawn up the plans, but unfortunately he had just resigned his position. They hoped to engage another engineer who had already undertaken work of this character. The sewers were practically laid except for a short length which would run to the new works. They waited the decision of the County Council with regard to the addition of a certain portion of Whitefield to the district.

The Clerk (Mr. Hulton) said the County Council had made the order, and the matter was now before the Local Government Board.

Mr. R. Walker said there was opposition to the order from Whitefield.

The Chairman said he thought the Local Board were acting in a *bona-fide* way, and that a further period of four months should be granted them.

The suggestion of the Chairman was adopted.

DEPUTATION FROM DROYLSDEN.

A deputation from the Droylsden Local Board, consisting of Mr. Richards and Mr. Cartwright, was next received.—Mr. Cartwright asked for an extension of time. The engineer of the Board had been instructed to carry out a scheme. They had not made more progress because of negotiations for amalgamation with Manchester, which were now at an end. They had purchased 45 acres of land.

Mr. Richards said that as soon as ever they got the sanction of the Local Government Board they would go on with the work, which they certainly hoped to complete before the end of next year. The scheme would be sent up in a week or a fortnight.

The deputation were asked to report progress to the Committee in three months.

A deputation from the Denton and Haughton Local Board consisted of Mr. Thomas Irwin, Mr. W. Howe, Mr. T. Norbury, and Mr. J. Richards (clerk).—Mr. Richards said they were in negotiation for land, but unfortunately they had not yet got it. The landowners were "awkward to deal with." They had practically decided on a scheme of filtration and precipitation.

A delay of three months was granted.

The Little Lever Local Board were represented by the Rev. James Slade, Mr. Hayward, Mr. Goulbourn (clerk), and Mr. Lomax (surveyor).—Mr. Goulbourn asked for an extension of time. He explained that five schemes of the Board had been already rejected by the Local Government Board, and they were now considering a sixth. The difficulty was due to the fact that the land in the district was liable to fall owing to coal mining operations, a fact which made the Local Board desirous of spending not more money than was necessary on their works. If they spent £4,000. in the execution of outfall works the probability was that they would have considerable expenditure afterwards in repairs. They could not afford to purchase the coal under the land.

The Chairman said the Committee did not mean to allow any authority to play with the question.

of three months for the production of the scheme was

ldish Local Board was represented by Mr. Jos. Higginson, Lowe, and Mr. T. H. Duckworth (clerk) It was explained iations were in progress with the borough of Stockport in a joint sewage scheme. The matter would be decided next n extension of two months was granted.

was read from the Town Clerk of Macclesfield stating that een chosen for the carrying out of a sewage scheme, and that had been made for a provisional order to put in force the powers of the Lands Clauses Act.

lick said the Corporation were doing something, but were it very quickly.

to much the same effect was received from Ashton-under- extension of three months was granted.

THE LOCAL GOVERNMENT BOARD AT FAULT.

erman Hopkinson said that from different authorities they aints of difficulties and delays in carrying out these schemes, the slow action of the Local Government Board. That now a new President, who probably was not acquainted with tance of these questions to this district. He thought it hat a deputation should wait on him urging the need of an egree of attention being paid to these schemes. He moved tment of a deputation.

erman Walmsley, in seconding the resolution, said they had all sorts of pretexts for delay on the part of local authorities. from knowledge when he said that the Local Government been one of the very greatest obstacles in giving effect even k Act of 1876.

airman said he would support a resolution drawing the f the Local Government Board to the great delays which in these matters and pressing on them the urgent necessity with the sewage schemes submitted to them for approval in time as possible. It would not be in accordance with the tice for the head of one department of the Government to deputation to the head of another department, but he would t he could personally to assist the object in view. He dorsed Mr. Hopkinson's remarks. The reason of the delays he Local Government Board had not the staff to do the work as called upon to do.

tion was adopted, and a deputation consisting of Mr. Thompson, Mr. Killick, Mr. Alderman Hopkinson, Mr. and Mr. Brierley, was appointed to wait on the President of Government Board in November.

THE NEED FOR A CONSULTATIVE COMMITTEE.

lick said it was evident that that Committee could not do a at the monthly meeting, and he moved that a consultative be appointed to confer with the Clerk and Chief Inspector. the more necessary to appoint the committee because it was they would be involved in legal action against authorities duals.

derman Griffin seconded the resolution, which was passed. nmittee appointed consists of Mr. T. W. Killick, Mr. V. K. Mr. S. B. Worthington, Mr. J. Maxwell, and Mr. W. th the chairman and vice-chairman.

ACTION BY THE COMMITTEE.

erk reported that the Chadderton, Dukinfield, Marple, and ocal Boards had not replied to the notice sent them by the e.

rmitage moved that proceedings be taken against these s unless satisfactory explanations are given within 14 days' to mmittee that they are taking action to comply with the Act. ton seconded the resolution, which was passed.

REPORT OF THE CHIEF INSPECTOR.

hief Inspector (Mr. R. C. Tatton) presented the following h was adopted:—"I beg to report to you that action is en against the Corporation of Bury, and that the case is down g on the 6th of October. The sewage from the Eccles Cor- district is discharged into the Worsley Brook, which is much n consequence. Detailed plans for sewage works have been o a sub-committee for examination and report, but application t been made to the Local Government Board. The scheme n irrigation scheme with tanks. The Board has purchased f land, which will give one acre to about 430 head of popula- would suggest that a limit of time be allowed within which n must be made to the Local Government Board. On the me I reported to you that the sewage works for the portion of ch is within your jurisdiction were in an unsatisfactory con- have now to report that arrangements have been made he Ince and Hindley Local Boards whereby the sewage from this district will be received into the Hindley Board's new sewage outfall works. This will do away with the old Ince works. On the same date I also reported on the condition of the Norden works (population 3,900). These are quite insufficient to effect a purification of the sewage, but the clerk wrote in reply to my complaint that the Board are of opinion that the works are quite sufficient to meet the requirements of the Joint Committee. I would suggest that the Board be requested to prepare an efficient scheme within a limited time. I have lately visited, by the invitation of the engineer, the sewage works of the Royton Local Board. The works, which at the time of my visit had been brought into partial operation, are on the international system. They are well constructed, and should be capable of effectually dealing with the sewage of the district. I have five cases of infringement of Part I. of the Joint Committee Act, which I propose to submit for the consideration of the sub-committee. They are cases in which I think action should be taken."

The Committee decided to allow the Eccles Corporation three months, and the Norden Local Board two months, within which to comply with the suggestions of the Chief Inspector.

## ACID DISTILLED WATER.

THIS apparent anomaly has recently been found by Dr. E. Gudeman, who communicated his phenomenal experience in a paper read before the American Chemical Society. It appears that the water supply of the City of Buffalo is taken from the Niagara river, about one mile from its source, Lake Erie. The inlet where the water is drawn is about one-quarter of a mile from the shore, and the river at that point has a six to eight mile current.

The water is generally clear, but after every severe rain storm, or from high winds, it becomes turbid and then contains quite an amount of suspended matter, which filtration will separate.

The water contains, per United States gallon, from eleven to fifteen grains of total solids, five to eight grains being organic. The inorganic portion consists mainly of calcium carbonate and sulphate.

From December, 1891, to August, 1892, the water as taken from the mains gave an absolutely neutral reaction. During August a sudden change took place, the water becoming alkaline. The amount of alkalinity varies; 100 c c. of water being sufficient to neutralize from 0·05—0·3 c.c. of half normal sulphuric acid. The water gives a strong reaction for carbonic acid, and this reaction is, without doubt, due to the calcium bicarbonate contained in the water. The water loses this alkaline reaction by filtration through animal charcoal.

The distilled water made from the Niagara River water, gives a distinct *acid* reaction.

The acid in 100 c. cm. of the distilled water will neutralize from 0·01—0·5 c.c. of half normal caustic potash solution.

The water before being distilled was made alkaline with caustic soda, sodium carbonate, caustic baryta, and barium carbonate, still the distillate gave the same acid reaction as the original untreated water. The water was made acid with sulphuric acid without any effect on the distillate. Potassium permanganate also gave no better results. The water was filtered through animal charcoal, then distilled, without any effect on the acidity of the distillate.

The amount of acidity varies constantly, but, so far, has always come within the above mentioned limits, the average being about 0·15 c.c. of semi normal potash solution to 100 c.c. of distilled water.

It makes no difference whether the distillation is carried on in copper or glass retorts; whether the heat is applied by means of steam coils or Bunsen burners.

The separate portions from the same distillation show no marked difference in acidity, the first 100 c.c. of distillate neutralizing as much potash solution as last. The water remaining in the retort gives the same reaction, neutral or alkaline, as the original water. This would tend to show that the acid is not contained in the water as such, but is a product of decomposition, continuously formed during ebullition.

The distilled water gave no reaction for carbonic acid and leaves absolutely no residue on evaporation. It reacts acid to solutions of litmus, lacmoid and alkaline phenolphthalein.

The water can easily be purified from this acid body by boiling off about one-fourth of its bulk, when the remainder will be neutral. A second distillation after having made the water alkaline with sodium carbonate, also gives a neutral distillate.

To be absolutely certain that this acid reaction was not due to some local contamination, Dr. Gudeman requested Prof. H. M. Hill, of the University of Buffalo, and Dr. J. A. Miller, of the Niagara University, to test the water as delivered at their respective laboratories, the one being about one mile and the other about two miles from his laboratory, and all supplied from different water mains. Both gentlemen obtained the characteristic acid reaction from their distilled waters.

These tests were begun in December, 1891, and are still being carried on.

## POTASSIUM TETROXALATE AS A STANDARD IN ACIDOMETRY AND ALKALIMETRY.

THE use of potassium tetroxalate as an indicator in alkalimetry has been made the subject of special study by Mr. B. C. Hinman, in the laboratory of Columbia College.

Tetraoxalate of potassium, $KHC_2O_4$, $H_2C_2O_4$, $2\ H_2O$ was originally proposed for this purpose by Ulbricht and Meissl, *Pharm, Centrh.* [N. F.], vi. 198. and commended by Kissling, in the *Zts. f. Angew. Chem.*, 1889, p. 332.

An investigation has been made of the properties of the salt with a view of determining its availability for this purpose.

The requisites for a substance to be used for standardizing are that it should be easily obtained pure, of definite chemical composition, that it should remain unaltered in the air, and react sharply with indicators.

Potassium tetraoxalate is soluble in forty parts of cold, and in six parts of boiling water (Storer, *Dic. Sol.*, p. 428)

Ignition converts it to $K_2CO_3$, so it would seem to be valuable for standardizing both acid and alkali solutions.

The formula given requires:

($H_2O$=14·173 per cent.)
Equivalent to $H_2C_2O_4$=70·866 per cent.
Equivalent to $K_2CO_3$=27·165 per cent.

It may be prepared by uniting solutions containing proper proportions of $K_2C_2O_4,2H_2O$, and $H_2C_2O_4$, $2H_2O$, crystallising out and purifying by recrystallization. Three repetitions are said to be amply sufficient to produce a pure substance.

This method was followed, and an examination made of three lots of the salt, crystallized four times, a mixture of that crystallized twice and thrice, and the crystals obtained from a concentration of the mother liquor.

Determinations of the oxalic acid in these samples were made by precipitation as $CaC_2O_4$, weighing as CaO, and by titration with KOH standardized by the usual method.

The results were as follows:

| Sample. | Method. | Tetra-oxalate taken. | $CaSO_4$ found. | $H_2C_2O_4$ per cent. |
|---|---|---|---|---|
| Cryst. 4 times ..... | Grav. | 0·7583 | 0·8224 | 71·903 |
| ,, ,, ..... | ,, | 0·5528 | 0·6112 | 71·837 |
| ,, ,, ..... | ,, | 0·6225 | 0·6759 | 71·869 |
| ,, ,, ..... | Vol. KOH | 0·5296 | | 71·94 |
| ,, ,, ..... | ,, | 0·6821 | | 72·13 |
| ,, ,, ..... | ,, | 0·8105 | | 72·17 |
| Cryst. 2 and 3 times..... | ,, | 0·4578 | | 73 39 |
| ,, ,, ..... | ,, | 0·3921 | | 73·15 |
| Cryst. from Mother liquors.... | ,, | 0·3546 | | 73·09 |

The salt was also tried with standard permanganate, and gave results too high.

All the samples are too acid by a little over one per cent, and the fewer the number of recrystallizations the greater is the excess of acid.

The mixed sample crystallized two and three times was again recrystallized three times and tested with standard KOH. The percentage of oxalic acid was 73·32; apparently no change in composition had taken place.

An effort was made to determine the water of crystallization by heating the substance in an air-bath at given temperatures for specific times.

The following results were obtained:—

| Sample. | Time of Heating in hours. | Temp. deg. C. | Weight taken. | Loss. |
|---|---|---|---|---|
| Cryst. 4 times ..... | 3½ | 80 | 1·0433 | 0 1483 |
| ,, ,, ..... | 2½ | 100 | 1·0433 | 0·1504 |
| ,, ,, ..... | 3½ | 128 | 1·0433 | 0·1656 |
| ,, ,, ..... | 6 | 128 | 1·0090 | 0·1691 |
| ,, ,, ..... | 9 | 128 | 1·0090 | 0 1740 |
| ,, ,, ..... | 11 | 128 | 1·0090 | 0·1789 |
| ,, ,, ..... | 3 | 95 | 0·7527 | 0·0980 |
| Cryst. 2 and 3 times..... | 3½ | 80 | 1·2680 | 0·1768 |
| Cryst. 4 times ..... | 3 | 100 | 0·7527 | 0·1103 |
| Cryst. 2 and 3 times..... | 3½ | 100 | 1·2680 | 0·1823 |
| ,, ,, ..... | 3½ | {128 / 160} | 1·2680 | 0·2348 |
| ,, ,, ..... | 6 | 128 | 1·0682 | 0·1683 |
| ,, ,, ..... | 9 | 128 | 1·0682 | 0·1749 |
| ,, ,, ..... | 11 | 128 | 1·0682 | 0·1789 |

These figures do not show a satisfactory result, and indicate that the combined water cannot be determined by heating.

Evidently a temperature of over 100° C. causes a decomposition, for in every instance at that temperature the salt lost more than its theoretical percentage of water of crystallization, and higher temperatures increased with the time.

This phenomenon was easily perceptible at 128° C temperature Borntrager says the salt must be heated to drying.

Yet in these experiments it was found that eleven hou this temperature caused a loss of over 3½ per cent. m theoretical figure for water.

It is thus evident that the salt cannot be heated to this without suffering decomposition.

In order to determine whether the apparent excess of w due to hygroscopic moisture, and whether or not t efflorescent, a weighed portion in a tared dish was moi few drops of distilled water and set aside in a desiccator trated sulphuric acid.

After this treatment, if the dish with its contents shou than it did before wetting, it would indicate either that the efflorescent, and contained hygroscopic moisture, or th but would effloresce in dry air

But the dish rapidly regained its original weight, and sistently at that point for three days, at the end of wh observations were discontinued.

Apparently then, the salt was dry, and was non-efflores

From the results of the determinations of the equivalent it would be expected if the water was out of proportion be low, but experiment has shewn that the equivalent ox water are both high.

As a matter of fact not much faith is to be placed in th minations, for the experiments reasonably justify the b estimation of the water of crystallization cannot be accura determining the loss on heating.

The ignition of several samples of the salt, weighing the resulting $K_2CO_3$ with sulphuric acid (standardized b bonate) using methyl orange as an indicator, gave the foll

| Sample. | Weight taken. | $K_2CO_3$ by weight. | $K_2CO_3$ per cent. | $K_2$ by ti |
|---|---|---|---|---|
| Cryst. 4 times..... | 1·0433 | 0·2817 | 27·000 | 0·2 |
| ,, ,, ..... | 1·0090 | 0·2717 | 26·927 | 0·2 |
| Cryst. (2 and 3) times. | 1 2680 | 0·3430 | 27·050 | 0·3 |
| ,, ,, ,, | 1 0682 | 0·2890 | 27·083 | 0 2 |

The averages of the percentages obtained by weighing yti tration 26·838.

These figures coinciding quite closely with the theoretical acid being high, indicates a curious balancing between ac For if the $K_2O$ be correct and the acid high, then the w low. But as the water determinations could not be satis by the method tried, this conclusion is unverified.

These results being so far at variance with theory, anot the substance was very carefully prepared in the same man and tested as before.

As usual, the purified salt, after being filtered from the was pressed between filter paper to remove the superflu and then spread out on fresh paper in a layer not over a inch thick, and left to dry for three days.

In order to determine whether all the hygroscopic mois removed by this treatment, a weighed portion of the dried was placed in a tarred dish, and allowed to remain i over sulphuric acid for three days. The loss was 0·728 the end of six days it was 1 23 percent., and a week later, been in the desiccator for about two weeks, the loss am per cent. At the end of eight weeks there was a loss of 1

The crystals had by this time assumed an opaque ap efflorescence was clearly taking place.

Therefore it is clear that by this procedure a determ hygroscopic moisture is impossible, for the salt effloresc over the experiment seems to show a contradiction to th deduced from a previous experiment made under cond similar, when the tetraoxalate refused to part with any crystallization in a desiccator over sulphuric acid. The o between the two experiments was that the samples of upon were produced at different times, though the effo second preparation to duplicate the method employed in t

This second preparation lost upon heating for three hou 14·370 per cent., but upon standing under a bell glass fo it gained 1·466 per cent. of water from the air. Thus wh nearly anhydrous it is deliquescent, and when containing i of water of crystallization, its tendency is to effloresce.

An average of three titrations of this second prepar KOH gave an equivalent of 73·88 per cent. of oxalic two per cent more than was found in the first sample, a cent. more than the theory calls for.

Upon ignition there was left a residue of $K_2CO_3$ amoun per cent., which is almost precisely that required by theor

ul tests for bases other than $K_2O$ gave negative results.
e use of indicators for determining the end reaction in these s, there seems to be some doubt as to which of the many in use est.
Association of Official Agricultural Chemists recommends the orange, although it is generally accepted that it does not react with organic acids, and upon trial the results were very un-

olphthalein works perfectly, and is certainly the best indicator for pose which is available, although lithmus properly prepared is give good results. Corralline, or rosolic acid, cochineal or car-cid, and Congo red are of no value at all as indicators with oxalic

result of these experiments it is clear that tetraoxalate of potas-s prepared by the directions of those who advocate its use, is not ance of constant composition.
variations from the theoretical figures are so great as to entirely e its use as an agent for standardizing solutions for volumetric s.
conclusion is justified by the preceding experiments, and finds tion by many who have investigated the subject.
is connection may be quoted the remarks of Mr. William Frear e 131 of the proceedings of eighth annual convention of the tion of Official Agricultural Chemists where he says: "The l by tetraoxalate of potash was not employed because it was mpossible to get a perfectly satisfactory salt, and because in our nce, even with dimethylanilin orange as an indicaior, it was not e to get a perfectly sharp end reaction. A tetraoxalate prepared my directions last year by Dr. McDonnell by dissolving together lecular proportions of chemically pure acid potassium oxalate and alic acid, gave after the fourth crystallization results showing it ess an acidity 1·17 per cent. greater than that sent out by Dr ell for comparison of standards, and which both the latter and ovell stated to agree exactly in strength with their acids standard-th $AgNO_3$
ther sample obtained from Baker and Adamson when precipi-s $CaC_2O_4$ and weighed as CaO gave only 96·51 per cent. of the ted amount of the latter oxide as a mean of three closely concor-eterminations
her confirmation is found in the experiments of Mr. F. C. Wells, ys, "Tetraoxalate of potassium possesses all the disadvantages ertain to all the above mentioned reagents. It is harder to purify da, and it weathers as readily as oxalic acid."
evident then that the salt is indefinite in character, uncertain in , and cannot be prepared, by the methods given, of such purity e of service for the purpose for which it is recommended.

## IRON AND STEEL JOTTINGS.

the recent meeting of the Iron and Steel Institute which was held at Liverpool, this year, under the presidency of Sir ick Abel, an interesting paper was read by Sir Lothian Bell,

MANUFACTURE OF IRON IN RELATION TO AGRICULTURE.

wo chief points touched upon by the author were the produc-f nitrogen in the form of ammonia from blast furnace gases and ilisation of the phosphoric acid in basic slags for agricultural es. As stated by Sir Lothian Bell, the chief source of ammonia recent years, was the gas liquor produced in the manufacture of nating gas, but he went further and described the nature and d of working the plant which has recently been put in operation Carnbroe Iron Works, in Scotland, where they use raw coal in last furnaces, and recover the ammonia by washing the waste

DESULPHURIZING IRON AND STEEL

e subject of another paper read by Mr. E. H. Saniter, of Wigan. uthor said that owing to the fact that sulphur was the worst which the manufacturer of iron and steel had to contend with, been led to make experiments upon the possibilty of removing lphur by lime. As the outcome of his experiments, he had d a process of which the following is a brief outline:—A mixture ium chloride and lime is prepared, which will fuse readily at the rature of the iron to be operated upon. The desired combination de by grinding calcium chloride and lime together in a mill to ghly mix them, and also to bring them to a moderately fine er. About equal parts of each are required to give the desired ity. This mixture is then placed on the bottom of a ladle or er, and consolidated by heat or kept in position by other suitable . The heat can be applied in the first instance by means of a blowpipe arrangement using blast furnace gas, but when in continuous use the heat of the ladle itself is quite sufficient. The receiver is then filled with iron, which can be drawn direct from the blast furnace, the heat of which melts the mixture, which, rising up through the metal, removes the sulphur very completely. The author did not find it necessary to have a reducing atmosphere, and, indeed, oxidation could be going on concurrently with the removal of the sulphur. Notwithstanding this, however, the sulphur was removed as sulphide. Should it be desirable to remove silicon as well as sulphur, the lime of the mixture is replaced by hydrate or carbonate of lime, or even oxide of iron in addition, should these first be insufficient. About 25 lbs. of chloride of calcium, and an equal weight of lime per ton of iron, are found sufficient to effect purification. In the many trials made, about three tons of iron direct from a blast furnace were treated in a ladle at each operation. Although the first or coldest iron from the furnace and hydrate of lime in the mixture were used, no "skull" is made, which is a fact of the very greatest importance, and there could be no doubt that if such a small quantity of metal is not materially chilled, they may safely assume that larger masses would never "skull." The uniformity of the results of obtained is very marked.

As regards the calcium salts required for this purpose, one very commendable feature about the process is, that the waste calcium chloride which is produced to the extent of thousands of tons in the manufacture of ammonia soda, and also in the Weldon Bleaching Powder Process can be utilised, thus making use of a waste product of which the author had on good authority been informed, not more than 10% was formerly made use of.

This paper was followed by another by Mr. Stead, which consisted generally of a discussion of the theories involved in the paper which had just been read by Mr. Saniter. These theories were thoroughly entered into by Mr. Stead, who in concluding his paper advised his hearers not to consider as final any theories or deductions that he might have drawn, since it was more than probable that in the light of further information such theories would suffer considerable modification. Experiments, carefully conducted, he said, must be considered as the voice of nature speaking truth, but the interpretation must be considered as the work of fallible humanity. In the discussion that followed the reading of this paper, Sir Lothian Bell took exception to one statement of Mr. Saniter's in regard to removal of silicon. He considered that the part played by the oxide of iron was of greater importance than Mr. Saniter appeared to consider, since it was with silicon and not silica that they had to deal with in the iron, and until they had oxidised the silicon into silica he did not see how it was possible to expect the action mentioned by Mr. Saniter to take place. The presence, therefore, of oxide of iron seemed to him indispensable.

## THE PROPERTIES OF THE KOLA NUT.

THE true kola is the fruit of the *Cola acuminata* or *Sterculia acuminata* which, according to Bret, grows about forty feet high and has the habit and aspect of the chestnut tree, while being much larger than the latter. It bears pale yellow flowers spotted with purple; its leaves are about six or eight inches long, and pointed at both ends. The fruit or seed of the kola is covered with a first envelope of a somewhat rusty colour, next to which is found the flesh of a rose colour or of white, that becomes greenish towards its complete maturity; the same tree bears fruit of both colours. These seeds are about the shape of a chestnut and of various sizes.

Chemical Composition.—The analyses of Heckel and Schladgenhauffen have shown that the principles which enter into the compositions of the kola are caffeine, theobromine, tannin, and glucose. The proportion of caffeine is 2·346 per cent. which is higher than that of coffees and teas most in use. Only Hayson tea, Pekœ Capet tea, and a few others are richer than the kola as regards caffeine.

Nutritive Properties.—As regards the nutritive value of the kola compared with cocoa, coffee and tea, the kola stands as the one richer in caffeine, while it stands as third as regards fatty substances, which are in larger amount in the cocoa. Also for the nitrogenous matters it stands in the third place, and therefore in the latter respect it would be less nutritive than coffee and cocoa but more than tea. An essential oil is produced by the roasting of the kola nut. Like the cocoa it does not contain any resin; tea does not contain sugar, but on the contrary, it has twice as much gum as the kola. Coffee contains much sugar, and under the point of view of carbo-hydrates, coffee as food would be in the first place and cocoa at the last one. Cellulose is in large quantity in the kola nut; there is less of it in coffee, cocoa and tea; but cellulose has no value under the elementary point of view.

In conclusion, kola containing more of that active substance, caffeine must be considered better than coffee, at least as a medicine.

## THE MANUFACTURE OF FERROUS SULPHATE.

DURING the last ten years the manufacture of the sulphates of iron and copper has undergone great developments, owing to the employment of these salts in the cultivation of the vine to prevent and cure the various fungoid diseases of the plant. Moreover, large amounts of ferrous sulphate are used for agricultural purposes, recent work having shown that it is a valuable fertilizing agent. The recent papers on this subject by Griffiths in England, and Marguerite Delacharlonny in France, are both well known.

We, therefore, give an account of the method employed in the manufacture of these two salts, taken from a description by Kienlen, which appeared in a recent number of the Moniteur Scientifique de Quesneville.

Almost all the sulphate of iron made in France is produced from old iron and dilute sulphuric acid. A few small works, notably in the departments of Aisne and Oise, still obtain it as a by-product in the manufacture of alum from aluminous schists (black, shale of Picardy). The greater number of chemical manufacturers who produce sulphuric acid also produce ferrous sulphate.

We will confine ourselves to a description, accompanied by some practical details of the direct process of manufacture from iron and sulphuric acid, as it is actually employed in chemical works abroad.

### ARRANGEMENT OF PLANT.

The action of the dilute acid upon the iron is carried out in wooden tanks of a conical shape, made of staves of pitch pine, 7-8 cm. thick, and lined internally with lead, 5 mm. thick. The tank itself is two metres high, 2·5 metres in diameter at the top, three metres at the bottom, and has a total capacity of about 120 hectolitres.

The tanks in which the action is carried out are placed on a platform raised to some height above the ground, and are pierced by two holes, which can be closed by leaden stoppers. One of these bored in the centre of the bottom of the tank serves to empty it completely and to remove the muddy deposit which is produced by the treatment of scrap iron, waste of tin plate, etc.; these are run into a vessel placed immediately beneath the tank. The second opening, in the side of the tank, allows of the removal of the saturated solution of sulphate of iron, which is run into a storage tank of equal size, in which it remains for 24 hours, to settle. In order to avoid draining off the mud deposited in the "solution" tank the opening is made in the side at a distance of about 25 centimetres from the bottom.

The storage tanks are best arranged on a second platform at a lower level, and at such a height from the ground that their contents may be run directly into the crystallizing vats by means of wooden spouts lined with lead. To avoid the too rapid cooling of the liquor—which would cause crystallization in the settling tank—the latter must be carefully protected by an outer case of wood, the space between the two being filled with non-conducting materials, such as brick dust, ashes, etc.

The settling tanks are also provided with two openings, one for removing the deposits, and the other for draining off the clear liquid; beneath each tank is placed a vessel for receiving the mud, which is afterwards exhausted by washing.

The crystallizers are rectangular wooden boxes lined with lead of 3 mm. thickness, and measuring 2·5 by 1·5 by ·9 metres. They do not rest directly upon the ground, but are supported on four small pillars of brick, 30 centimetres high, so that crystallization may be aided by the circulation of the air, and that any leaks which may arise can be at once detected.

### STRENGTH OF ACID USED.

The iron must be acted on by very dilute acid. Taking 60° as the temperature of the saturated solution of sulphate of iron, 100 parts of the crystallized salt, $FeSO_4 + 7H_2O$ require theoretically:

| | |
|---|---|
| Sulphuric acid | 35·25 |
| Water of crystallization | 45·32 |
| Water of solution | 38·00 |
| Total | 118·57 parts of |

dilute sulphuric acid diluted so as to contain 29·73 per cent. of monohydrate, that is at about 26° Baumé.

Practically, it is preferable to work with a still weaker acid, since the use of a too concentrated one gives rise to the formation of a lower hydrate, $FeSO_4 + 4$ aq., which is precipitated as a white powder, very slightly soluble in cold water. The best strength to use is from 20-25° Baumé. Chamber acid, which should contain as little nitre as possible, is run directly into a measuring vessel placed above the tank, and is diluted to the requisite extent in the tank itself, by the addition of water, or in the course of manufacture by a mixture of water with mother liquors from the crystallization. The iron is contained in a basket of strong lead, pierced with holes and suspended in the tank so hat it is exactly covered by the liquid.

### THE PROCESS.

At the commencement of the operation the liquid is heated by the direct injection of steam to about 50°; at this temperature the action of the acid upon the iron proceeds very rapidly, and continues without any further supply of steam, the heat produced in the reaction being sufficient to raise the temperature of the vat to between 80 and 90° C. The solution of the iron is accompanied by a copious production of hydrogen and other gases; the tank is therefore covered by a lid made of tarred wood, and provided with a chimney to remove the gas. The evolution of the gas is a source of great inconvenience to the workmen and might produce an explosive mixture in the neighbourhood of the tank. As the iron disappears, it is replaced by fresh supplies, until the evolution of gas becomes feeble and finally ceases entirely. In order to saturate the acid as completely as possible the last charge should be made with very clean iron, such as iron shavings or remnants of wire. When good iron has been employed the action is complete in about 20 or 22 hours. The solution is then run into the settling tank, where it remains for 24 hours. It then marks 41-42° Baumé at 60° C. and contains 750-800 grams. of $FeSO_4 + 7H_2O$ per litre. The time required for crystallization varies from a week to a fortnight, according to the temperature of the air. The end of the separation is shown by the fact that the temperature of the liquor is only very slightly above that of the air. The mother liquors have a specific gravity of 25-30° B., and contain on the average 400 grams. of sulphate per litre. A cubic metre of the solution of sulphate of iron at 41-42° B. and at 60° C. deposits 600-650 kilos. of dried crystals, or about 80 per cent. of the sulphate present, and produces about 500 litres of mother liquors.

These data serve as a basis for calculating the number and capacity of vats, crystallizers, etc., required for producing a given amount. The crystals obtained are drained in the crystallizers after the removal of the mother liquor and are then dried in a centrifugal machine lined with lead. Such a machine one metre in diameter is capable of drying a daily production of 5,000 kilos. of crystals. The drying removes from the crystals about 3-3·5 per cent. of adhering mother liquor.

On leaving the crystallizers the mother liquors are conveyed by means of wooden spouts lined with lead into a sunken tank or storage well, from which they are raised directly into the solution tanks by an injector of hardened lead and there serve to dilute the chamber acid for a new operation.

*(To be continued.)*

## THE MICA MINES OF NELLORE.

DR. WARTH, officiating superintendent of the Central Museum, has written a most interesting report upon Mr. E. H. Sargent's mica mine near Inikurti, a place nineteen miles from Nellore. Mica is the talc of commerce, although scientifically speaking the latter is quite a distinct mineral. In elastic and generally transparent plates mica is used for a variety of purposes, chiefly as a substitute for glass, as it bears sudden changes of temperature better and is not so liable to be broken. Some idea of its value may be gathered from the following approximate rule for calculating the price of ready-cut selected rectangular pieces in London. One pound weight costs as many times twopence as each single piece has square inches surface. This equation holds good between 10 and 100 square inches. Below these limits the prices are smaller and become finally nil; above these limits they are higher and would end in fancy prices. Although Mr. Sargent's mine has only reached a depth of 60 feet, no less than 20 tons of pure ready-cut mica have been extracted during the past two years. In fact, Mr. Sargent's enterprise has been highly successful. It appears that the first indication for this deposit was a ridge of quartz which stood eight feet above the surface of the plain. Then Mr. Sargent found out excavations on the west side of the ridge, which he followed up. It very likely, Dr. Warth thinks, that similar deposits exist in the neighbourhood, but such facts could only be proved by trial excavations aided by the existence of quartz ridges and traces of broken mica. At a distance of about ten miles to the south Dr. Warth found quite a group of more or less successful mica mines in similar rocks near the village of Utkur. The mica was associated with the same white quartz and whitish felspar. There were also the same accessory minerals, garnet and tourmaline. One mine, called Sukhagini (black stained mine), produces mica which is stained black and brown through the spread of manganese ore and iron between the planes of cleavage. Some slabs of very clean surface without any cracks whatever, 27 inches by 32 inches, were in store. The price of these would have been fabulous if they had not been black. We further learn from Dr. Warth's report that the sorting of the mica is very important for the trade. A large quantity of the mica is thrown away at the pit, where the waste heaps glisten in the sun. Of the mica brought to Mr. Sargent's stores at Inikurti only about 23 per cent. is finally selected

le. Everything else is thrown away, being either cracked, ntly transparent, ripple-marked, or too small. The smallest tangular size is 2 in. by 2 in., but such small sizes are at y cheap as Bengal exports too much of it. The pieces are rding to rectangular standard patterns. Pieces of the same then tied in bundles and so sent to London. Dr. Warth such successful mining should be continued and extended favourable concessions to trustworthy companies applying the industry. Government, in its order on his report, this, and we may therefore expect to see a further develop- e mineral in the near future. The corundum deposits of Coimbatore also deserve attention, and we should like Warth deputed specially to report upon them.

## ANUFACTURE OF ALKALINE NITRITES, ING WHITE LEAD AS A BYE-PRODUCT.

By H. N. Warren.

uction of sodium nitrite, which is at present being extensively educing agent in the arts, and manufacturies, has of late subject of no small amount of research; in order to obtain of uniform percentage, and at the same time possessing appearance.

ry of white lead has also been so extensively dealt with in s pages of scientific literature, that in order to deal more he subject, or at least in a beneficial manner; presents at lem which can only be solved with difficulty.

itrite of 98% is at the present time realising £30 per ton, ead £20, but to manufacture these compounds up to the ntage, by any of the ordinary methods, entails considerable as regards the depreciation of plant, etc., leaving little ofit; and to avoid these difficulties the author has contrived y which galena is caused to act as a reducing agent, upon rate, yielding at the termination of the reaction sodium ium sulphate, and white lead. The process as briefly rought about as follows, a sufficiency of commercial nitrate mixed with a sufficiency of ground galena, to which is lequate portion of water, and the whole introduced into a aden retort, after which is added a sufficiency of vitriol, the ich is thus afforded, terminates with the production of sul- d which remains in the retort, while at the same time the es, freed by the liberated nitric acid coming into contact galena, are ejected from the retort by blowing in a r, and conveying them from thence into a solution of soda- g a free evolution of carbonic acid, whilst sodium ins in solution, and only requires crystallising to render it The sulphate of lead remaining, is next treated with a sodium carbonate, and sodium hydrate, and boiled in the same until completely converted into white lead; ly to be dried. As expected the first samples of white lead d were entirely useless, presenting no body, and of a very ur, but after a considerable lapse of time, the author has isfaction of preparing, by the introduction of certain not hitherto noted, a compound possessed of properties g to the finest prepared Dutch samples, and rivaling the rds colour.

## NOTICES.

### LONDON AGENTS.

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## *ANSWERS TO CORRESPONDENTS.*

G. H. R.—Thanks for letter and enclosure.

J. C. and Sons.—We are always glad to oblige subscribers in such matters.

P. J. R. (India Office)—We thank you for your kindness and promptitude in the matter.

P. J.—We have made application as you suggested, and trust the result may be satisfactory.

J. S. (Plymouth)—We trust you have received the number you required safely.

C. E. T.—We shall be glad to hear further from you.

J. J. G.—It has been sent as requested.

B. H. and Co.—We are hoping to hear more from you shortly, and trust you have not forgotten the matter altogether.

T. H.—It is sent to the works now every week.

E. T. V.—We should advise you to give it a trial, as we think you will continue when once you have taken it regularly for awhile.

## Trade Notes.

**Obituary.**—We much regret to announce the death of Dr. G. D. Longstaff, in his 94th year. Taking his degree at Edinburgh, in 1828, he for some time was assistant professor of chemistry at that University. Later in life he engaged in commercial enterprise. He was a subscriber to the *Chemical Trade Journal* from the outset, and highly esteemed in connection with the chemical trade.

A Petroleum Ship on Fire.—At Bristol last week a steamship *Bayonne*, belonging to the Anglo American Oil Co., which had recently arrived from Philadelphia was reported to have been on fire. About two million gallons of oil were on board. Had it not been for the prompt action of the captain and the chief engineer, in conjunction with a few of the men, who succeeded in extinguishing the fire, undoubtedly the vessel would have been destroyed. As it is, much damage has been done.

The Action Against Bury.—On Thursday last at the Bury Police Court, the Bury Corporation appeared in answer to the summonses issued by the Mersey and Irwell Joint Committee, charging them with polluting the rivers Irwell and Roach with sewage matter. The case aroused considerable interest more particularly as it is the first action taken by the Joint Committee upon the authority of the rights given them in their new act, and therefore will virtually prove a test case. Upon the conclusion of Mr. Sutton's statement of the case for the Joint Committee the hearing was adjourned till Thursday 13th. inst. A special report of the proceedings will appear in our columns next week.

Still Room for Hope.—The Thames mud has long been a bye-word, while in the matter of pollution this river used to rank next to the rivers Mersey and Irwell; but during the past summer, according to the report of the chemist to the Main Drainage Board of the London County Council, the river has at no time been in the slightest degree discoloured by sewage or black mud. Bearing in mind personal observations, it can only be inferred that it is something other than sewage that renders pelucidity conspicuous by its absence. Still improvement is unmistakably evinced, and in a measure which we would fain observe in the rivers of Lancashire, only we can't. Anyhow we live in the hope of some such anomaly arising.

Bad Water in Ireland.—An extensive outbreak of typhoid fever at Easington, county Durham, from which numerous deaths have resulted and which has created much alarm, has been traced to the water supply of the district, derived from wells which are near a churchyard. This water, the county analyst reports, is literally alive with organisms of a repulsive type. Residents have been consuming this water, and as a consequence a large amount of disease still prevails. Last week, the Castle Eden Bench ordered three of the wells to be closed forthwith, and summonses were obtained in respect of thirteen other wells in the same district which were declared to be extensively polluted with sewage matter.

Messrs. Leopold Cassella & Co.—The diazotizing process with which this firm is so intimately connected, has been further developed of late, and a card has now been issued showing a number of yarns dyed black and brown. Three processes are involved. For dyeing 100 lbs. cotton yarn a bath containing 15 lbs. of Glauber's salt, 5 lbs. soda crystals, and 1 to 4 lbs. of colour is prepared. If only Glauber's salt is used the bath is completely exhausted. The yarn is then given a bath of sodium nitrite (3 lbs. in 3½ gallons of water), and 10 pints of water with 10 pints of hydrochloric acid. Without allowing the yarn to dry, it is then developed at once by special methods detailed in the circular, which accompanies the pattern card. We recommend these particulars to the notice of dyers, etc., who are interested in the production of fast dark blues, black or browns.

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

There is very little change to report in the tar products market, though perhaps the tendency of the more valuable products is to harden, benzol, 50/90's and 90's, being quoted still at 1s. 4d. and 1s 7d. respectively. Anthracene, 9d. to 9½d. for 30% A, and 6d. to 7d. 30% B.

Business has been very quiet in the sulphate of ammonia market since the beginning of the month, and as usual dealers are attempting to make out that the market is falling. Both consumers and dealers have assumed a passive attitude in the hope that this will delude the producers and depress the market. But while there is so little offering and it is so well known that large requirements will have to come on the market before long, there should be no danger of a relapse. At any rate business is still doing at £10. 2s 6d., and all spot parcels are being readily picked up.

## MISCELLANEOUS CHEMICAL MARKET.

Bleaching powder still continues in good demand, and supplies are more plentiful than they were; price for spot and early delivery £8. 7s. 6d. nett per ton f.o.r. Re-sales £8. per ton in small quantities. The demand for caustic soda is still unsatisfactory, but prices are without alteration, viz.: F.o.b. Tyne, 77%, £11. 15s.; f.o.b. Liverpool, 74%, £11. 5s.; 70%, £10. 5s.; 60%, £9. 2s. 6d.; cream, 60%, £8. 17s. 6d., 10 ton lots and upwards. Soda ash is rather easier for forward delivery, but current prices are 1⅜d. per degree f.o.b. Sales of ammonia alkali, 58%, have been made for 1893 delivery at 1¼d. per degree. Soda crystals are without alteration at £2. 18s. to £3. 5s. per ton, maker's works, according to package. Chlorate of potash 7½d. per lb. Chlorate of soda 8½d. There is no change in the position, or in price, of recovered sulphur. Salt cake, 95%, is in excess of requirements, and prices run from 30s. to 32s. 6d. per ton, maker's works. Sulphate of copper without improvement at £15. to £15 5s per ton. White sugar of lead still firm at £25. 10s. c.i.f. Brown acetate of lime steadier at £5. 17s. 6d. to £6. per ton, and a firmer market for forward delivery. Grey acetate of lime £10. 10s. to £10. 15s., c.i.f. White powder arsenic still in good demand, and lowest price on the spot is £12. 15s. nett at Garston. Oxalic acid quiet, and price nominally 3d. Muriate of ammonia is in better request. Carbolic acid crystals rather dearer for prompt and forward. Potash, caustic, and carbonate, remains steady in value, and there is a fair amount of business being done for forward delivery. Reports, generally, from all quarters, indicate a continued quiet state of trade in all branches of the chemical industry.

## REPORT ON MANURE MATERIAL.

The market continues very dull without appreciable alteration in values.

There are sellers of Florida, 75/80%, phosphate rock at 8½d. per unit, in cargoes c.i.f. to U.K., and 7d. per unit is probably nearest value of Peace River rock, hot air dried. For hot-air dried South Carolina river rock 6½d. per unit is being quoted in certain quarters, and counter offers invited The scarcity of River Plate bone cargoes continues, and we do not hear of any transactions to U.K., though it is reported that considerable sales have been made to United States. Nominal value for U.K. is £4. 5s. per ton. On the other hand East Indian bones and bone meal offer more freely *for shipment*, and for good lines sellers seem inclined to meet buyers in regard to price. Crushed Kurrachee bones offer freely at £4. 2s. 6d., ex quay Liverpool, and Bombay bone meal, fair average quality, can be bought at same price. On spot, £4. 7s. 6d. to £4. 15s. required for fair average up to fine quality, East Indian bone meal. There is still enquiry for Charring bones, but for bone ash there is practically no demand for U.K.

The nitrate market remains much as last reported. Spot is firm at 8s. 3d. per cwt. for ordinary quality, and 8s. 6d. for refined. Due cargoes are worth 8s. 3d. to 8s. 4½d, according to size and test; later arrivals are held for prohibitive prices for the most part.

There is rather more enquiry for dried blood, nearest value of home prepared 8s. 6d. per unit, f.o.r. at works.

## THE METAL MARKETS.

LONDON, Wednesday.—Pig iron dull. Scotch warrants closed at 42s. 1d. cash. Middlesborough and Hematite quotations are purely nominal. Copper steady: Chili bars, G.O.B.'s and G.M.B.'s closed at £44. 13s. 9d. cash, and £44. 3s. 9d. to £44. 11s. 3d. three Tin steady: Straits closed at £92. 17s. 6d. to £93. 7s. 6d. £93. 10s. to £94. three months. Australian, £93 7s. English ingots, £96. Lead, firm: Spanish, £10. 10s. to £ 3d.; English, £10. 12s. 6d. to £10. 15s. Silesian spelter: £18. 15s. to £18. 17s. 6d. Quicksilver: First hands, £6. second hands, £6. 5s. 6d. *Copper shares* quiet: Cape, 1½ Copiapo, 2 to 2⅛; Libiola, 2⅞ to 3; Mason and Barry, 2 Rio Tinto, 14 15/16 to 15 1/16; Tharsis, 4⅜ to 4½; Namaqua, Panulcillo, 9/16 to 7/16.

WOLVERHAMPTON, Wednesday.—The reduction workers' wages was not allowed to make any difference to selli to-day. Ironmasters point out that the drop is very slight an no room for reducing prices. Buying was largely postponed quarterly meetings next week. Pigs sold subject only to qu rates, which may be stronger Northamptons to-day 45s. 6d. shires, 47s. to 47s. 6d.; Lincolns, 50s. More furnaces blown in here, but prices are maintained. All-mine pi medium, 46s. to 48s.; and common, 38s. 6d.

GLASGOW, Wednesday.—Market flat, with moderate Scotch done at 41s. 11d. and 41s. 9½d. cash; also at 42s., 4 and 41s. 11d. one month; closing with buyers at 41s. 9d. 41s. 10½d. one month, sellers ask ½d. more. Middle closes with buyers at 39s. 6d. cash; sellers ask 39s. 10½d. closes with buyers at 49s. 8d. cash; sellers ask 49s. 11d.

## LIVERPOOL OIL AND COLOUR MARK

Wedn

OILS.—Palm oil continues in fair demand, but prices ar to weaken. In olive, business is limited, and values are u Neopolitan offers at £39. and Candia £37., other grades u according to quality. Linseed: The tendency to advance chronicled last week has been realised, and Liverpool makes with a fair enquiry at 19s. 3d. to 20s. per cwt. in exp Cottonseed: Liverpool refined has again reached 18s. 6d. per prices may yet harden still further. There is a good market. continues at 20s. to 24s. Castor oil is if anything a shade fir seconds Calcutta ruling at 2⅜, with a moderate business d first pressure French 2 9/16 per lb. Tallow is firm, sales being at full prices. Resin: common is still quoted 3s. 9d. An brighten matters by withholding steam freights was made d week, but at present without effect. There is, however, a business passing and all grades are firmly held. Spirits of t touched 21s. 3d. last week, but are now firm at 21s. 9d. Petroleum: Russian and American remain *in statu quo ante.*

COLOURS continue to rule very steady, and there is no alteration to report in prices. Ochres: Oxfordshire, comm medium, £12., best, £15.; Derbyshire, common, 40s., medi best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18 Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s lead, red lead, and oxide of zinc unchanged. Venetian red, to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide Common, £6.; medium, £10.; finest, £20.

## THE LIVERPOOL MINERAL MARKE

The market in minerals continues firm. Manganese scarce and prices in consequence are higher than usual. 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. chloride, £15.; carbonate, £12. 10s., steady. Magnesite fr unaltered and quiet. Raw ground £6. 10s., and calcined Bauxite (Irish Hill brand), continues in good demand; l seconds 16s., and thirds 12s. French chalk: Arrivals are a good spot trade is being done at full figures. "Angel Whi and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 9 superfine, 105s. Barytes: Carbonate, best lump, none offer 70s. to 80s.; whilst finest white sulphate is in demand. White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. P quiet. Iron ore freely offered; prices easy; Bilbao, Cumberland easier. Santander and manganiferous quiet. stone: Best quality inquired for. No. 1 lump, £5. 10s. smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, impalpable ground, £7.; "Emerald" ground, 80s. Scheelite tungstate of soda, and tungsten metal in good demand, and firm. Chrome ore: There is more doing, and several sales spot and forward have been made, at fair prices. Antimony

and metal £43. to £44. Asbestos very firm. Potters' lead ılls, £10. 10s. to £11. 10s. Calamine strontia sulphate :) quiet. Limespar steady, especially for English manu- ; old G.G.B. brand in demand at 50s. (ground). Felspar Fluorspar: Best quality scarce. Ferro-manganese steady, and e unchanged. Plumbago: Spanish, £5.; best Ceylon lump quotations; Italian and Bohemian, £4. to £12. per ton. ers," £5. to £6.; Blackwell's "Mineraline," £10. French ›s. to 22s. 6d. Ground mica, £45. to £50. China clay ›ommon, 18s. 6d.; good medium, 22s. 6d. to 25s; best, 30s. at Runcorn). Bog ore (oxide of iron) steady; finest quality ;3s.

## TYNE CHEMICAL REPORT.

TUESDAY.

icals are quiet. Bleaching powder still scarce and quoted at to £9. per ton. Caustic soda is £11. 15s. per ton for the ıtrength, 77%.

ıing powder, softs, £9. per ton; hards, £9. 15s. per ton; ›oda, 76/77%, £11. 10s. per ton, 70%, £10. 5s. per ton; d sulphur, 2 cwt. bags, £4. 17s. 6d. per ton; soda ash, 48%, 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposul- soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, . per ton, in 10 ton lots; silicate of soda, 75° Tw. £3. per ton, · £4. per ton, 140° Tw. £4. 7s. 6d. per ton; soda crystals, , £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. on nett weight; chlorate of potash, 7d. per lb. less 6%; pearl ıg, £3. 10s. per ton nett; pure white sulphate of alumina, per ton; blanc fixe, £7. 10s. per ton; chloride of barium, . per ton; nitrate of baryta crystals, £19. per ton; ground, s. per ton; sulphide of barium, £7. per ton; carbonate of , £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; of barium, £11. per ton.

Durham salt dull at 10s. per ton f.o.b. Tees.

s quiet generally. The price of best Northumberland steam is . to 10s. 6d per ton f.o.b.; second qualities dull at about 1s. less; small steam, 3s 6d. to 4s per ton.

oal is now in better demand as the "Winter" shipments are ıg, the price varies considerably according to position of ; from about 7s. 6d to 8s. 6d. per ton f.o b, may be said to be ıe figure.

steady and in request at 15s. to 16s. per ton.

## THE COPPER MARKET.

's. Harrington and Co, in their fortnightly report dated Liver- ctober 4th, 1892, state:—

Chili Charters for the past fortnight are advised as 650 tons, ;ith 1,100 tons for the previous fortnight makes 1,750 tons for ıth, thus making the total charters since 1st January, 16,800 Exchange 17¾d.

our last the market for G.o.b.'s and G.m.b.'s has been irregular, ily fluctuations, values keeping between £43. 11s. 3d. and £44. :ash, and £44. and £44. 13s. 9d. three months, till yesterday, good speculative demand setting in, prices advanced to £44. . cash, and £45. 6s. 3d. three months, but the improvement maintained, the market closing to-day with sellers at £44. 13s. £45. 2s. 6d. respectively.

otal stocks in Liverpool, Swansea, London, and Havre show a : of 1,469 tons for the fortnight, but with an increase of 183 the previous fortnight, makes a total decrease of 1,286 tons for ıth.

stocks include about 3,400 tons of copper sold, but not yet d to smelters.

visible supply shows a decrease of 1,768 tons for the fortnight, ı an increase of 397 tons for the previous fortnight, makes a crease of 1,371 tons for the fortnight.

otal deliveries for the fortnight are 4,749 tons, which with 3,514 the previous fortnight, makes a total of 8,263 tons for the

›resent stock of G.m.b.'s in warehouse, Liverpool and Swansea, tons, against 2,451 tons on the 16th ult. The delivery in a was 5 tons, but 60 tons being added to the Swansea stock, ın increase of 55 tons for the fortnight.

ed and manufactured sorts are steady, quotations being: Tough 47. 15s. to £48. 5s.; best select, £49. to £49. 10s.; Indian £52. to £53.; strong sheets, £56.; and yellow metal sheets, er lb.

The sales of furnace material comprise—at Liverpool: 200 tons Mason's precipitate, at 8s. 8½d.; 1,150 tons Chili regulus, to arrive per *Bellucia* for Swansea; and 240 tons, to arrive, per *Bellaura*, for Liverpool, at 8s. 9d; 200 tons Columbian Matte at 9s., and 250 tons at 9s. 1½d; 25 tons Argentiferous Chili regulus, and 100 tons Argentiferous Montana Matte, on private terms; and 100 tons Alosno ore, to arrive, at 7s. 6d. per unit. At Swansea: 77 tons Cantabrian ore, at 8s.; and 40 tons Boleo ore also at 8s. per unit.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The crisis in the paraffin and mineral oil industry reached a definite stage last week, in the certainty that the internal breach was unhealable, and that the combination for the upholding of solid paraffin values, in conjunction with the American producers, no longer remained intact. A principal member, the Pumpherston Oil Co., formally retired, and began offering its scale at 2½d; the others had to give way to that extent also, but still consumers declined to resume purchasing, holding for a still greater reduction. The price below for scale and wax is stated at the halfpenny reduction only, but probably these goods are already secretly on offer for less. A drop of one halfpenny per pound means shrinkage of annual revenue, over the whole of the industry, to the extent of £100,000. or more. It is impossible to forecast the course of the market. The other paraffins are unchanged, with the exception of paraffin spirit (naphtha), which has been lowered to 6d.

Sulphate of ammonia was favoured with a small spurt in the middle of last week, but this seems already exhausted, and prompt value in this market now is probably fully hit at £10. Certainly it is on easy offer at £10. 1s. 3d.

Bleaching powder has further eased off and now stands at £8. 10s, or possibly a little less. Soda ash and refined alkali supplies are exhausted for the balance of 1892, the syndicate having announced that they can sell no more for prompt till next year. These are consequently not quoted below. Chlorate of potash is a fraction cheaper, and the others are unchanged.

Chief prices current are:—Soda crystals, £2. 17s. 6d., nett Tyne; alum in lump, £5. 10s., nett Glasgow; soda ash, not obtainable; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; refined alkali, not obtainable; bleaching powder, £8. 10s. nett Tyne; saltcake, 36s. 6d.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 7⅜d., less 5% Liverpool; nitrate of soda, 8s. 6d.; sulphate of ammonia, £10. to £10. 1s. 3d. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £14. 7s. 6d. less 5% Liverpool; paraffin scale (hard), 2½d., and soft 2½d. per lb.; paraffin wax, 120°, semi-refined, 3d.; paraffin spirit (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower); ditto (lubricating), 865°, £3. to £3. 10s., 885°, £4. 10s. to £6., and 890/895°, £5. to £7. Week's imports of raw sugar at Greenock were 21,804 bags.

# New Companies.

**The Carbon Battery Co., Ltd.**—CAPITAL £10,000 in £1., shares. The object of this company is to manufacture electricity and sell the by-products arising therefrom, also to deal in magnesium, aluminium, and other chemicals. The subscribers to the memorandum of association are:—S. Wellington, 28a, Basinghall-street, London, E.C., merchant; F. A. Freeland, 11, Richmond-road, Barnsbury; C. E. Jolley, 29, St George's-road, N.W., engineer; H. Russell, 74, Chancery-lane, W.C., secretary; L. Herz, 49, Grosvenor-road, Highbury New Park, bristle merchant; C. H. Russell, 34, Chapter-road, N.W., gentleman; J. T. Shrives, 337, High Holborn, manufacturer.

**The Cleansine Syndicate, Ltd.**—CAPITAL £10,000., in £1. shares. This company is formed with the object of carrying on the business of cleaners, drysalters, druggists, tallow melters and refiners, soap boilers, oil and colourmen, and dealers in chemical preparations. The subscribers to the memorandum of association are:—H. G. Clarke, Ormond House, Wimbledon, solicitor; W. J. Matthews, 49, Arthur-road, Finsbury Park, accountant; B. R. Wilshire, Birch Lodge

[illegible] Chatham, [illegible] Wednesbury, [illegible] A. S. Davey, [illegible] shares. Incorporation of [illegible] in oils, dyes, [illegible] the memorandum of association [illegible] West Kensington Park, [illegible] W.; C. W. Wallace, 88, [illegible] merchant; R. Dixon, Feltham, Middlesex, [illegible] Hatchwood-buildings, Temple, W.C., [illegible] 29, Welbeck-street, Cavendish-square, [illegible] S. A. Savendale, Worcester Park, Surrey, Indian [illegible]

**New Electrical Metallurgical Syndicate, Ltd.** — Capital [illegible] shares. The object of the company is to acquire certain patents connected with the electrolytical production of metals and the utilisation of the by-products formed in such processes. The subscribers to the memorandum of association are:—F. A. Freeland, 11, Richmond-road, Barnsbury, N.; S. Wellington, 28a, Basinghall-street, E.C., merchant; H. Russell, 74, Chancery-lane, E.C., secretary; C. E. Jolley, 29, St. George's-road, N.W., engineer; L. Herz, 49, Grosvenor-road, Highbury New Park, bristle merchant; C. H. Russell, 34, Chapter-road, N.W., gentleman; J. T. Shrives, 337, High Holborn, manager.

**New Glass Syndicate, Ltd.**—Capital £10,000., in £1. shares. The object of this company is to develop certain patents connected with improvements in the manufacture of glass. The subscribers to the memorandum of association are:—F. A. Freeland, 11, Richmond-road, Barnsbury, N.; S. Wellington, 28a, Basinghall-street, E.C., merchant; C. E. Jolley, 29, St. George's-road, N.W., engineer; H. Russell, 74, Chancery-lane, secretary; L. Herz, 49, Grosvenor-road, Highbury New Park, N., bristle merchant; C. H. Russell, 34, Chapter-road, N.W., gentleman; J. T. Shrives, 337, High Holborn, manager.

**New Sulphur Recovery Syndicate, Ltd.**—Capital £10,000., in shares of £1. each. This company has been formed with a view to acquire and utilise certain inventions connected with the recovery of sulphur, and also to deal in aluminium and magnesium, and the bye-products contained in the aforementioned processes. The subscribers to the memorandum of association are:—F. A. Freeland, 11, Richmond-road, Barnsbury; S. Wellington, 28a, Basinghall-street, London, E.C., merchant; C. E. Jolley, 39, St. George's-road, N.W., engineer; H. Russell, 74, Chancery-lane, E.C., secretary; L. Herz, 49, Grosvenor-road, Highbury New Park, merchant; C. H. Russell, 34, Chapter-road, N.W., gentleman; J. T. Shrives, 337, High Holborn, manager.

# Gazette Notices.

### PARTNERSHIPS DISSOLVED.

R. Bonsor, R. C. H. Bonsor, and M. W. Bonsor uner the style of J. and R. Bonsor and Co., Bradford, manufacturers and merchants of dyes, as far as regards R. Bonsor.

F. G. Denny and W. Rowling under the style of Denny and Co., Leeds, oil and tallow merchants.

J. Martin and W. C. Glover under the style of Martin, Glover and Co., St. Leonard's-on-Sea, druggists, drysalters, and mineral water manufacturers.

# The Patent List.

*This list is compiled from Official sources in the Manchester [illegible] Laboratory, under the immediate supervision of George E. [illegible] Alfred R. Davis, who report professionally upon the value of [illegible] Patents.*

### APPLICATIONS FOR LETTERS PATENT.

**Decomposing and Concentrating Liquids.** H. W. Wallis. 16,698.
**Improvements in Spirit Lamps.** W. Hill. 16,705. Sept. 19th.
**Manufacture of Plaster.** J. C. Bloomfield. 16,717. Sept. 19th.
**Charging Machine for Gas Retorts.** F. Grein. 16,750. Sept. 19th.
**Improvements in Brick Kilns.** J. Conley and J. M. Wolfe. 16,751.
**Improvements in Brick Kilns.** J. Conley and J. M. Wolfe. 16,752.
**Improvements in the Manufacture of Sulphuric Acid.** J. Rice Sept. 20th.
**Disacerbation of Kola-Nut Powder.** H. Hoffmann. 16,765. Sept.
**Recovering Soap and Suint from Wool Grease.** W. Mills. 16,767.
**Improvements in Manufacturing Wire Glass.** F. Shuman. 16,792.
**Recovering Copper and Nickel from their Ores.** J. Strap. 16,800.
**Triphenylmethan Dye Stuffs.** H. E. Newton. 16,814. Sept. 20th.
**New Basic Colouring Matters.** H. E. Newton. 16,815. Sept. 20th
**Extracting Fatty Substances from Wool.** W. R. Lake. 16,827. S
**Improved Disinfectant and Deodorizer.** W. Cooper. 16,837. Sept
**Improvements in Destructor Furnaces.** J. Burton. 16,838. Sept.
**Precipitating Oxide of Tin from Solutions.** C. L. C. Berton Sept. 21st.
**Precipitating Tin from Acid Solutions containing other Metals.** Berton. 16,874. Sept. 21st.
**Improvements in the Smelting of Zinc.** E. Ruck and F. N. Raggatt Sept. 21st.
**Extracting Gold and Silver from their Ores.** J. C. Montgomeri Sept. 21st.
**Treating Rice and other Grain for Brewing and Distilling P** F. E. V. Baines. 16,896. Sept. 21st.
**Electrical Machinery for the Manufacture of Ozone, Oxide of N Recovery of Tin from scrap, and Electro-plating with Alu** J. Swinburne. 16,919. Sept. 22nd.
**Extracting Iodine from Salt Waters and Mother Liquids co Iodine.** W. P. Thompson. 16,942. Sept. 22nd.
**Distillation of Oils and Fats.** A. G. Petty. 16,954. Sept. 22nd.
**Applying Bronze and other Powders to Paper.** W. B. Silverlock Sept. 23rd.
**Preventing the Bursting of Water Pipes by Freezing.** C. 16,999. Sept. 23rd.
**Sewage Treatment.** W. D. Scott-Moncrieff. 17,006. Sept. 23rd.
**Regenerative Gas Furnaces.** J. F. Bell. 17,036. Sept. 24th.
**Frits for the Production of Glazes, Enamels, etc.** A. Horsfall Sept. 24th.
**Smoke Washing Apparatus.** J. E. Bott. 17,062. Sept. 24th.
**Improvements in Oil Fuel Furnaces.** J. E. Bott. 17,063. Sept. 24
**Improvements in Making Gas.** H. Collet and M. Merichenski Sept. 24th.
**Production of Azo-Colouring Matters.** Read Holliday & Son, Lt Turner. 17,070. Sept. 24th.
**Silver-plating Compound.** A. Culley. 17,081. Sept. 24th.
**Moistening and Purifying Air.** A. Schmid. 17,086. Sept. 24th.
**Phosphate Separator and Screen Washer.** W. W. Horn. 17,112.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending September 24th.*

**Acetate of Lime—**
U. States, 546 pkgs. H. Wallace & Co.

**Acetic Acid—**
France, 1 pkg. Arnati & Harrison
Holland, 56 A. & M. Zimmermann

**Acetone—**
Holland, 16 pkgs. A. & M. Zimmermann

**Alkali—**
France, 210 c. Arnati & Harrison

**Alum—**
Holland, 28 pkgs. Ohlenschlager Bros.

**Antimony—**
Smyrna, 50 t. French & Smith
France, 1 B. & F. Wf. Co., Ltd.
" 16 Vivian, Younger, & Co.

**Asbestos—**
U. States, £130 S. Guiterman & Co.
Holland, 300 Phillipps & Graves
Italy, 50 A. C. Baber & Co.

**Barium Chloride—**
Holland, 100 pkgs. R. G. Hall & Co.

**Barytes—**
Germany, 22 cks. S. Ward & Co.
Belgium, 41 J. B. Orr & Co.
" 30 Burrell & Co.
Holland, 45 W. Fenton
" 23 Brougham Young
Germany, 25 Prop. Scott's Wf.
" 19 S. H. Willoughby
" 61 W. Fenton
Belgium, 50 bgs. H. A. Litchfield & Co.

**Bromide of Iron—**
Germany, 6 pkgs. A. & M. Zimmermann

**Caoutchouc—**
Zanzibar, 7 c. L. & I. D. Jt. Co.
Lamu, 10 Major & Field
Madagascar, 115 W. Brandts, Son, & Co.
Rangoon, 3 R. Gray
Germany, 61 J. E. Wilson
Singapore, 183 J. H. & G. Scovell
Zanzibar, 54 Clarke & Smith
E. Indies, 51 L. & I. D. Jt. Co.
C. America, 21 Steibel Bros.
N. Grenada, 26 "
Germany, 9 Prop.
Portugal, 65 Elk
" 9 Anderson,
" 10 Prop.
Zanzibar, 118 Lew
E. Indies, 49 Kleinwort, So
Carthagena, 1 Majo
France, 132 L. & N. W.
Zanzibar, 244 L. & I. D
France, 4 Flageol
Portugal, 10 W. M. Smit
Zanzibar, 46 Wall
C. America, 13 Mildred, Co

**Castor Oil—**
E. Indies, 655 cs. Montg
" 100 L. & I. D

**tic Potash—**
land, 17 pkgs. Spies Bros. & Co.

**tic Soda—**
tium, 9 c. Beresford & Co.

**nicals** (*otherwise undescribed*)
nany, 119 pkgs. A. & M. Zimmermann
,, 48 T. H. Lee
land, £10 G. Meyer & Co.
,, 6 Phillipps & Graves
nany, 34 ,,
,, 13 G. Boor & Co.
,, 10 H. Lorenz
ice, 13 C. Brumlen & Sons

**m of Tartar—**
ice, 7 pkgs. G. Ward & Sons
2 Ross & Deering
5 B. & N. Wf. Co., Ltd.
2 S. Hanson, Son, & Co.
18 W. C. Bacon & Co.
5 J. Puddy & Co.
5 M. Ashby, Ld.
, 22 Italo-Brit. S. N. Co.
n, 6 W. C. Bacon & Co.
10 B. & F. Wf. Co., Ltd.
land, 5 ,,
,, 25 Middleton & Co.

**tuffs—**
**aline**
land, 7 pkgs. Elkan & Co.
nany, 3 H. Lambert
**nnatto**
lon, 7 pkgs. H. A. Litchfield & Co.
itates, 9 Gillespie Bros. & Co.
**rgols**
ice, 2 pkgs. J Laing, Son, & Co.
, 548 Thames S. T. & L. Co., Ltd.
**chineal**
ries, 25 pkgs. J. Owen
, 21 Hammond & Co.
**tah**
dies, 4 pkgs. Ross & Deering
pore, 111 J. H. & G. Scovell
oon, 25 A. Howden & Co.

**racts**
a, 409 pkgs. A. J. Humphrey
, 50 Carey & Sons
m, 5 W. B. Marcus
rk, 7 Bailey & Leetham
tes, 4 W. W. Young
1 L. & I. D. Jt. Co.
m, 25 Leach & Co.
, 6 Union L. Co., Ltd.
40 T. H. Lee
87 Prop. Chmbln.'s Wf.
rk, 1 J. Sinclair & Son
, 1 W. Banner & Co.

**ic**
a, 174 t. W. Shelcott
176 Anderson, Anderson, & Co.
16 Park, Macfadyen, & Co.

**bier**
bre, 127 pkgs. Brinkmann & Co.
2,420 L. & I. D. Jt. Co.
kong, 304 A B. Curtis & Co.

**go**
es, 226 chts. L. & I. D. Jt. Co.
11 F. Huth & Co.
19 Arbuthnot, Latham, & Co.
110 R. Von Glehn & Sons
25 Benecke, Souchay, & Co.
3 Stansbury & Co.
21 W. Brandts, Son, & Co.
ry, 1 Elkan & Co.
es, 6 Slutz & Co.
58 Wallace Bros.

**ibolams**
3,415 pkgs. L. & I. D. Jt. Co.
684 J. P. Alpe & Co.

**ella**
r, 22 pkgs. Gray, Dawes, & Co.
22 L. & I. D. Jt. Co.
s, 22 Lewis & Peat

**ower**
s, 26 pkgs. Ripley, Roberts, & Co.

**on**
1 pkg. L. & I. D. Jt. Co.

**Sumac**
Austria, 10 pkgs. Ross & Deering
Italy, 250 W. Shelcott
,, 683 J. Kitchin, Ld.
,, 690 Italo-Brit. S. N. Co.

**Tanners' Bark**
Auckland, 34 t. Beresford & Co.
,, 13 Von der Meden & Co.
Melbourne, 1 C. M. Lampson & Co.
,, 21 Fisher, King, & Co.
N. Russia, 46 Baxter & Hoare
Hobson's Bay, 14 t. Devitt & Hett
N. Zealand, 5 Von der Meden, & Co.
Adelaide, 14 L. & I. D. Jt. Co.
,, 14 Brown & Elmslie

**Turmeric**
E. I., 1,200 pkgs. H. A. Litchfield & Co.
China, 212 T. Vasmer & Co.
E. I., 137 Hopkins & Ford
Ceylon, 400 Ross & Deering
E. I., 40 L. & I. D. Jt. Co.

**Valonia**
A. Turkey, 26 t. J. Graves
,, 9 Hicks, Nash, & Co.
,, 70 A. & W. Nesbitt
,, 50 A. J. Humphrey

**Dyestuffs** (*otherwise undescribed*)
France, 1 pkg. Hernu, Peron, & Co.

**Farina—**
Holland, 25 pkgs. J. Barber & Co.

**Glucose—**
U. States, 250 pkgs. 1,400 c. F. J. Warren
,, 50 290 c. Pillow, Jones, & Co.
,, 550 799 R. G. Hall & Co.
Germany, 26 213 Prop. Chambln.'s Wf.
France, 200 200 L. Norman & Co.
U. States, 225 228 Beresford & Co.
France, 200 200 J. Barber & Co.
U. States, 500 500 Barrett, Tagant, & Co.
,, 1 500 1,500 Union L. Co., Ltd.

**Guano—**
Peru, 71 t. Anglo Contl. G. Wks.

**Lactic Acid—**
Germany, 1 pkg. Spies Bros. & Co.

**Lead Acetate—**
Germany, 20 cks. F. Boehm

**Manure—**
Holland, 300 t. Anglo-Contl. G. Wks.
Auckland, 2 A. Hunter & Co.
Germany, 10 T. H. Lee
France, 310 J. Burnett & Sons

**Methyl Alcohol—**
Germany, 10 cks. Lister & Biggs
Belgium, 8 W. G. Blagden

**Mica—**
U. States, £30 Knight & Morris

**Ochre—**
France, 16 cks. H. A. Litchfield & Co.
,, 110 W. Harrison & Co.
Holland, 3 11 pkgs. Phillipps & Graves

**Oxide of Iron—**
Austria, 27 brls. T. & W. Farmiloe

**Painters' Colours—**
Germany, 2 pkgs. T. H. Lee
France, 32 Flageollet & Co.
U. States, 100 J. Melvin
Germany, 40 cks. T. Hamilton
U. States, 20 W. & A. Nunn
Germany, 3 L & J. D. Jt. Co.
Holland, 22 Phillipps & Graves
,, 3 R. Baelz & Co.
Belgium, 26 1 T. Palmer
France, 50 C. F. Gerhardt
U. States, 18 brls. Anglo American Oil Co.
Germany, 3 cks. H. Lambert
,, 42 Phillipps & Graves
,, 1 cs. Craven & Co.
Singapore, 13 L. & I. D. Jt. Co.
U. States, 50 A. C. Davey
Belgium, 100 bgs. Arnati & Harrison
France, 2 G. J. Thompson

**Paraffin Wax—**
Germany, 109 brls. Beresford & Co.
U. S., 4,700 J. H. Usmar & Co.
,, 268 C. Ogleby & Co.
,, 1,400 pkgs. H. Hill & Sons
,, 100 brls. Mordaunt Bros.

**Phosphate Rock—**
Belgium, 240 t. Odams Chemical Manure Co.
,, 370 Anglo Contl. G. Wks.

**Pitch—**
N. Russia, 300 cks. Sieveking, Droop, & Co.

**Plumbago—**
Germany, 34 cks. B. Gallaway
,, 3 T. H. Lee
Ceylon, 43 brls. Prop. Sun. Wf
Belgium, 6 sks. Magee, Taylor, & Co.
Ceylon, 71 Doulton & Co.
,, 33 J. Cooper

**Potash—**
France, 210 c. F. W. Berk & Co., Ltd.
,, 220 Petri Bros.
Canada, 204 Charles & Fox

**Potassium Bicarbonate—**
Holland, 26 pkgs. A. & M. Zimmermann

**Potassium Carbonate—**
France, 10 c. J. A. Reid

**Potassium Chloride—**
Germany, 4 pkgs. H. Lambert

**Potassium Oxymuriate—**
Belgium, 50 pkgs. G. Boor & Co.

**Potassium Permanganate—**
Holland, 11 pkgs. F. Boehm
Germany, 16 Spies Bros. & Co.
,, 20 H. Lorenz

**Potassium Prussiate—**
Germany, 9 pkgs. A. & M. Zimmermann

**Potassium Sulphate—**
France, 25 pkgs. Weatherley, Mead, & Co.

**Quicksilver—**
Singapore, 85 flks. Borneo Co.

**Rosin—**
Germany, 2 brls. Craven & Co.
U. States, 2,100 G. Nutter & Co.
,, 750 F. & S. Chiesman & Co.
,, 200 Prod. Brokers Co.

**Saltpetre—**
E. Indies, 696 bgs. C. Wimble & Co.
,, 230 L. & I. D Jt. Co.
Germany, 23 cks. Craven & Co.

**Sodium Acetate—**
France, 15 pkgs. H. Wallace & Co.
,, 400 T. Palmer
Belgium, 18 Lister & Biggs

**Sodium Chlorate—**
France, 116 pkgs. W. J. Groves

**Sodium Sulphate—**
Germany, 186 pkgs. F. Boehm

**Stearine—**
Holland, 6 cks. J. Kitchin, Ltd.
France, 72 sks. Beresford & Co.
,, 280 bgs. G. Boor & Co.
U. States, 25 cs. Williams, Torrey, & Co.

**Sulphur—**
Italy, 10 t. C. Capes & Co.
,, 3 Middleton S. S. Wf. Co.
,, 56 G. Boor & Co.
,, 200 W. C. Bacon & Co.
,, 300 Brandram Bros. & Co.
,, 50 Windschuegl & Co.
,, 10 H. S. Smith & Co.

**Tallow—**
N. Zealand, 29 cks. L. & I. D. Jt. Co.
,, 30 Brown & Elmslie
N. Russia, 50 Leach & Co.
Sydney, 87 Aust. Meat Co.
N. Zealand, 20 T. H. Lee
,, 490 Flack, Chandler, & Co.
France, 3 pkgs. Mory & Co.
Adelaide, 111 Baxter & Hoare
Melbourne, 742 R. Brooks & Co.
Sydney, 63 D. Cohen & Co.
,, 34 L. & I. D. Jt. Co.
N. Zealand, 96 Culverwell, Brooks, & Co.

**Tar—**
Russia, 4,110 brls. Linck, Moeller, & Co.

**Tartaric Acid—**
Holland, 20 pkgs. B. & F. Wf. Co., Ltd.
,, 66 Middleton S. S. Wf. Co.
,, 10 Middleton & Co.

**Tin Crystals—**
Germany, 2 pkgs. H. Lambert

**Tin Oxide—**
Germany, 1 pkg. H. Lambert

**Turpentine—**
Savannah, 2,219 brls. Prod. Brokers Co., Ltd.
Wilmington, 1,278 ,,
N. Russia, 26 Dussek Bros. & Co.
Germany, 2 cks. H. Lambert

**Ultramarine—**
Germany, 30 cs. G. Steinhoff
Holland, 44 pkgs. Thames S. T. & L. Co., Ltd.
,, 6 Haeffner, Hilpert, & Co.
,, 10 pkgs. Hernu, Peron, & Co.
,, 1 ck. J. Barber & Co.
,, 9 Phillipps & Graves
Belgium, 6 Leach & Co.
,, 2 brls. W. Harrison & Co.
France, 20 cs. T. M. Duche & Sons

**Varnish—**
France, 13 pkgs. Flageollet & Co.
U. States, 13 Standard Varnish Wks.

**Vermilion—**
Hong Kong, 5 pkgs. W. M. Smith & Sons

**White Lead—**
Holland, 50 cks. T. & W. Farmiloe
Belgium, 39 Burrell & Co.
,, 22 Leach & Co.
,, 22 Blundell, Spence, & Co.
Germany, 25 M. Ashby, Ld.
Holland, 49 A. & M. Zimmermann
Germany, 48 W. Fenton
,, 9 P. Jantzen
,, 20 Randall Bros.
,, 27 W. Croft
,, 24 W. A. Rose & Co.
France, 10 J. Watt & Sons

**Zinc Oxide—**
Holland, 75 brls. M. Ashby, Ld.
Germany, 30 cks. S. Ward & Co.
U. States, 42 Williams, Torrey, & Co.
Germany, 25 J. Matton

## LIVERPOOL.

*Week ending September 22nd.*

**Acetate of Lime—**
New York, 2,631 bgs.
Rouen, 14 cks. Co-op. W'sale Society, Ld.

**Acid—**
Leghorn, 52 cks.
,, 12 Pickford & Co.

**Barytes—**
Rotterdam, 23 cks.
Antwerp, 28 50 bgs.

**Castor Oil—**
Genoa, 5 cs. W. H. Jackson
Leghorn, 10
Calcutta, 493 Ralli Brs.

**Chemicals** (*otherwise undescribed*)
Rouen, 37 cks. Co-op. W'sale Society, Ld.
Rotterdam, 5

**Colours—**
In transit, 20 cs. 60 cks.
Rotterdam, 7 9
Antwerp, 3 brls. J. T. Fletcher & Co.
Ghent, 2 ,,

**Cream of Tartar—**
Rotterdam, 14 cks.

**Dextrine—**
Hamburg, 25 bgs. D. Currie & Co.

**Dyestuffs—**
**Algarobilla**
Valparaiso, 82 bgs. Schmitz & Co.
**Argols**
Bordeaux, 7 cks.
**Cochineal**
Gr. Canary, 9 bgs. Widow, Duranty & Son
**Divi Divi**
Hamburg, 89 bgs.
**Extracts**
New York, 30 brls.
Halifax, 80 cks. Boutcher, Bacon & Co.
Bordeaux, 100
Baltimore, 10 brls. Houston & Lannoch
Antwerp, 10
Ghent, 200 cks.
**Gambier**
Singapore, 511 bls. E. Boustead & Co.
,, 1,189

**Indigo**
Akassa, 1 cs. Royal Niger Co.
**Myrabolams**
Calcutta, 1,048 bgs. Petrocochino Brs.
Bombay, 4,025
Calcutta, 1,352 3,000 pkts.
**Orchella**
Lisbon, 16 bgs. J. Martin & Son
" 212 77 brls.
**Saffron**
Valencia, 1 cs.
**Sumac**
Palermo, 2,830 bgs. 1,260 bls.
**Tanners' Bark**
Marseilles, 452 bls.
**Turmeric**
Calcutta, 359 bgs.
**Valonia**
Syra, 100 bgs. G. T. Scrini
Smyrna, 19 M. Vahen & Co.
" 21 Papayanni & Co.

**Glucose—**
New York, 90 brls.
" 10 Murray & Co.

**Iodine—**
Pisagua, 121 brls.
Iquique, 91
Valparaiso, 91 Vornerk, Gebrieder & Co.

**Limestone—**
Seville, 2 stns. United Alkali Co.
Antwerp, 16 cs.

**Mica—**
New York, 11 brls.

**Naphtha—**
Rotterdam, 4 dms.

**Ochre—**
Rouen, 1 brl. R. J Francis & Co
Marseilles, 50 brls.

**Paint—**
Boston, 10 cs. Leech & Co.
Hamburg, 20 12 cks.

**Paraffin Wax—**
New York, 60 brls.
" 1,000 G. B. Taylor

**Phosphate—**
Montreal, 200 t. Anglo-Can. Phos. Co., Ld.
St. Valery, 2,200 bgs.
Ghent, qty.

**Phosphate Rock—**
Beaufort, S.C., 2,780 t.

**Pitch—**
Antofagasta, 24 sks. Brownells & Co.
Dunkirk, 20 cks.
Amsterdam, 12

**Potash—**
Rouen, 65 cks. Co-op. W'sale Society, Ld.
Hamburg, 12
Dunkirk, 22

**Pyrites—**
Huelva, 2,546 t. Matheson & Co.

**Rosin—**
New York, 1,250 brls.
Marseilles, 4 cs.
New York, 500 R. Crooks & Co.
" 500
Hamburg, 26 cs.
Baltimore, 2,106 brls.

**Saltpetre—**
Bombay, 253 bgs.
Kurrachee, 110
Hamburg, 20 kgs. 50 brls.
Calcutta, 1,150

**Soap—**
Leghorn, 800 bxs.
New York, 2 cs.
Marseilles, 111

**Soapstone—**
Genoa, 508 bgs.

**Sodium Sulphate—**
Seville, 2 cs. United Alkali Co.

**Stearine—**
Talcahuano, 24 bgs. Duncan, Fox & Co.
Antwerp, 38

**Sulphur—**
Catania, 50 bgs. 7 brls.

**Tallow—**
New York, 100 hds. 100 tcs.
Rouen, 33 cks. Co-op. W'sale Society, Ld.
Philadelphia, 20 Richardson, Spence & Co.
" 50 hhds.

**Tartar—**
Bordeaux, 26 cks.

**Tartar Emetic—**
Hamburg, 8 cks. D. Currie & Co.

**Tartaric Acid—**
Rotterdam, 10 cks.

**Ultramarine—**
Rotterdam, 26 cs. 3 cks.
Hamburg, 5 D. Currie & Co.

**Verdigris—**
Bordeaux, 4 cks.

**Waste Salt—**
Hamburg, 50 t. D. Currie & Co.

**White Lead—**
Rotterdam, 5 cks.
Antwerp, 7
Ghent, 12

**Zinc Ashes—**
Marseilles, 12 cks.
Montreal, 32 brls. W. Blythe & Co.

**Zinc Oxide—**
New York, 100 brls.
Rotterdam, 100 cks.
Antwerp, 25 brls. J. T. Fletcher & Co.
" 35

**Zinc White—**
Rotterdam, 50 cks. O. & H. Marcus

## GLASGOW.

*Week ending September 29th.*

**Alum—**
Rotterdam, 39 cks G. & J. Boyd

**Barytes—**
Rotterdam, 24 cks.

**Barytes Sulphate—**
Antwerp, 200 bgs. 22 cks.

**Borate of Lime—**
Hamburg, 1 bg.

**Castor Oil—**
Marseilles, 281 cks. 4 cs.

**Chrome Ore—**
Huelva, 150 t. Seville Sulphur & Copper Co.

**Colours—**
Rotterdam, 9 cks. 1 cs. 1 bx. J. Rankine & Son

**Cream of Tartar—**
Marseilles, 2 cks.
Rotterdam, 3 J. Rankine & Son

**Dyestuffs—**
**Alizarine**
Rotterdam, 60 cks.
**Extracts**
Marseilles, 13 cks.
Antwerp, 2
New York, 15 brls.
**Madder**
Marseilles, 6 brls.
Rotterdam, 1 ck. J. Rankine & Son

**Gypsum—**
Rouen, 120 t. J. & P. Hutchinson

**Ochre—**
Marseilles, 66 brls.

**Paraffin Wax—**
New York, 524 brls.

**Phosphate of Lime and Rock—**
Ghent, qnty.

**Soap—**
Rotterdam, 2 css. J. Rankine & Son

**Stearine—**
Bordeaux, 50 bgs.

**Tallow—**
New York, 100 hhds.

**Tar—**
Marseilles, 86 brls.

**Tartar—**
Bordeaux, 4 cks.

**Tartaric Acid—**
Rotterdam, 7 cks. J. Rankine & Son

**Tin Oxide—**
Rotterdam, 3 cks.

**Tin Salt—**
Amsterdam, 1 cs.

**Waste Salt—**
Hamburg, 232 t. 135 cks.

**Wood Spirit—**
Hamburg, 5 dms.

**Zinc Oxide—**
Hamburg, 50 cks.

## HULL.

*Week ending September 24th.*

**Acetic Acid—**
Hamburg, 20 balns. Furley & Co.

**Alkali—**
Flushing, 3 cs. Zeeland S. S. Co.

**Asbestos—**
Reval, 40 bgs.
St. Petersburg, 2 cs. Wilson, Sons & Co., Ld.

**Barytes—**
Antwerp, 42 cks. Bailey & Leetham
Bremen, 22

**Boracic Acid—**
Hamburg, 2 brls. Wilson, Sons & Co., Ld

**Caoutchouc—**
Hamburg, 1 cs. C. M. Lofthouse & Co.

**Chemicals** (*otherwise undescribed*)
Bremen, 2 cs. 7 cks 1 botl Veltmann & Co.
Antwerp, 82 pks. Wilson, Sons, & Co., Ld

**Colours—**
Hamburg, 13 cks. Hanger, Watson & Harris
Rotterdam, 3 G. Lawson & Sons
" 4 pks. 1 W. & C. L. Ringrose
Hamburg, 10 Sissons Brs. & Co.
Bremen, 8 Veltmann & Co.
Trieste, 3 brls. Wilson, Sons & Co., Ld.
Danzig, 32 cks.
Flushing, 4 cs. 30 194 pks. Zeeland S. S. Co.
Rotterdam, 6 3 Hutchinson & Son
Antwerp, 1 Wilson, Sons & Co., Ld.

**Dyestuffs—**
**Alizarine**
Rotterdam, 40 cks. W. & C. L. Ringrose
" 28 brls. 1 cs. G. Lawson & Sons
**Madder**
Rotterdam, 5 cks. W. & C. L. Ringrose
**Sumac**
Palermo, 1,788 bgs. Wilson, Sons & Co., Ld.
" 1,900

**Farina—**
Ghent, 100 cs. Wilson, Sons & Co., Ld.

**Glucose—**
Hamburg, 4 cks. Wilson, Sons & Co., Ld.
New York, 100 brls. "

**Manure—**
Amsterdam, 150 bgs. Hirschfeld Brs.

**Metallic Oxide—**
Hamburg, 3 cs. G Lawson & Sons

**Paint—**
Boston, 52 cs. Wilson, Sons & Co., Ld.
New York, 20 "

**Plumbago—**
Hamburg, 6 cks. Todd & Son
" 12 F. B Grotrian & Co.

**Potash—**
Rotterdam, 10 cks. G. Lawson & Sons

**Pyrites—**
Huelva, 646 t. J. Dalton Holmes & Co.

**Saltpetre—**
Antwerp, 100 bgs. Wilson, Sons & Co., Ld.

**Soap—**
Bari, 71 cs. 62 pks. Wilson, Sons & Co., Ltd.
New York, 100 bxs. "
Trieste, 3 cs. "

**Sodium Nitrate—**
Hamburg, 50 kgs. Wilson, Sons & Co., Ld.

**Stearine—**
Antwerp, 12 bgs. Bailey & Leetham
Rotterdam, 10 bls. Hutchinson & Son
Antwerp, 52 pks. Wilson, Sons & Co., Ld.

**Sulphur—**
Catania, 2,877 pks. Wils & [illegible]
" 400

**Tartaric Acid—**
Rotterdam, 2 cks. Hutch

**Turpentine—**
Libau, 159 brls.
Trieste, 1 cs. Wils & [illegible]

**Ultramarine—**
Rotterdam, 4 cks. 5 cs. Hu

**Varnish—**
New York, 21 brls. Wils & [illegible]

**Waste Salt—**
Hamburg, 508 bgs. Furle

**White Lead—**
Antwerp, 31 cks. [illegible]
Rotterdam, 22 Hutchinso

**Zinc White—**
Amsterdam, 10 cks. W. [illegible]

## TYNE.

*Week ending September 2*

**Alum Earth—**
Hamburg, 17 cks. Tyne S.

**Barytes—**
Rotterdam, 5 cks. Tyne S.

**Colours—**
Rotterdam, 3 brls. Tyne S.

**Lead Acetate—**
Hamburg, 8 cks. Tyne S.

**Limestone—**
Antwerp, 3 crts. Tyne S.

**Manure—**
Stavanger, 48 bgs.

**Paint—**
Arendal, 16 cks.

**Saltpetre—**
Hamburg, 4 cks. Tyne S.

**Ultramarine—**
Rotterdam, 1 ck. Tyne S.
Hamburg, 8 cks. 5 cs. "

## GOOLE.

*Week ending September 14*

**Alum—**
Rotterdam, 164 cks.

**Caoutchouc—**
Boulogne, 3 cks.

**Dyestuffs—**
**Alizarine**
Rotterdam, 18 brls. 24 pkgs.
**Extracts**
Rouen, 50 cks.

**Dyestuffs** (*otherwise undescri*
Boulogne, 42 cks. 3 cs. 39 pk

**Farina—**
Rotterdam, 220 bgs.
Antwerp, 50

**Glucose—**
Calais, 100 bgs.

**Lead Acetate—**
Rotterdam, 15 cks.

**Potash—**
Dunkirk, 33 cks. 54 dms.
Calais, 27 98
Hamburg, 10

**Pyrites—**
Huelva, 1,136 t.

**Saltpetre—**
Rotterdam, 100 bgs.

**Waste Salt—**
Hamburg, 200 bgs. 288 cks.

## GRIMSBY.

*Week ending September 17t*

**Chemicals** (*otherwise undescri*
Antwerp, 3 cks.
Hamburg, 22 pkgs.

**Indigo—**
Rotterdam, 11 cks.

**Size—**
Antwerp, 19 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

## THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending September 28th.*

**Acetic Acid—**
Brisbane, 3 c. £5

**Acids—**
Cape Town, 20 cs. 1 kg. £36
Auckland, 3 10
Singapore, 2 11

**Alkali—**
Shanghai, 1 t. 7 c. £5
Philadelphia, 2 2 50

**Ammonia—**
Limon, 14 drs. £26

**Ammonium Carbonate—**
B. Ayres, 10 cs. £28
Paris, 1 t. 2 c. 30

**Ammonium Chloride—**
Hamburg, 3 cks. £21
Galatz, 14 c. 21
Yokohama, 10 108
Melbourne, 10 18
Sydney, 30 145

**Ammonium Nitrate—**
Algoa Bay, 36 rns £315

**Ammonium Sulphate—**
Cologne, 12 t. £120
Rouen, 5 2 c. 55
Ostend, 11 3 109
Hamburg, 207 12 2,312

**Bleaching Powder—**
Cape Town, 12 c. £5

**Boracic Acid—**
Sydney, 5 c. £10

**Borax—**
Maryborough, 1 c. £2
Townsville, 10 15
Melbourne, 5 t. 250
Copenhagen, 5 cks. 50
Hamburg, 1 10

**Carbolic Acid—**
Cape Town, 91 cks. £216
Brisbane, 4 cs. 67
Adelaide, 11 26
Philadelphia, 5 c. 24
Hamburg, 40 drs. 2 9 t. 12 200 brls. £155
Hong Kong, 2 11
Kingston, 10 drs. 15
Trinidad, 4 cs. 17
Montreal, 10 41

**Caustic Potash—**
Sydney, 3 t. 6 c. £80
Melbourne, 2 5 58
Adelaide, 2 10 47

**Caustic Soda—**
Algoa Bay, 1 t. 17 c. £54
E. London, 5 8
Rockhampton, 1 1 30
Launceston, 4 1 30
Melbourne, 1 14 40
Natal, 1 5 43

**Chemicals** *(otherwise undescribed)*
Algoa Bay, 4 cs. £28
Rockhampton, 6 cks. 10
Toronto, 5 78
Adelaide, 31 pkgs. 38
Natal, 20 drs. 17
B. Ayres, 7 c. 13
Hong Kong, 5 25
Cape Town, 24 2 4 90
Penang, 12 18
Melbourne, 50 kgs. 58
Sydney, 40 110
Montreal, 2 14

**Chloride of Lime—**
Townsville, 5 t. 2 c. £74
Gibraltar, 2 10 35

**Citric Acid—**
Hamburg, 1 t. 2 cks. £236
Copenhagen, 3 c. 25
Seville, 10 80
Valparaiso, 1 8
Montreal, 5 41
Brisbane, 1 8
B. Ayres, 1 9
Rotterdam, 4 150
St. Petersburg, 1 10 238
Melbourne 1 132

**Coal Products—**
**Aniline**
New York, 113 pkgs. £1,050
Brisbane, 1 cs. 10
Melbourne, 1 18
**Aniline Oil**
Rotterdam, 12 drs. £380
**Anthracene**
Dusseldorf, 200 cks. £981
**Benzol**
Rotterdam, 20 cks. 32 drs. £593
Hamburg, 5 pns. 50
**Creosote**
Dieppe. 588 brls. £123
Danzig, 100 44
**Creosote Oil**
Treport, 40 brls. £91
**Naphthalene**
Hamburg, 1 ck. £14
**Pitch**
Rangoon, 12 brls. £14
Naples, 50 cks. 34
Boston, 200 1,000 623
New York, 1,500 pkgs. 42 637
Hockfield, 130 t. 190
Cette, 760 1,374
Antwerp, 249 249
Jersey, 6 brls. 13
Sydney, 25 18
Duisberg, 122 171
Constantinople, 200 80
**Pyridine Bases**
Antwerp, 12 cks. £102
**Tar**
Natal, 100 drs. £10
Townsville, 50 10
Sydney, 25 cks. 25
Malmo, 225 brls. 100
Danzig, 250 125
New York, 1,500 768
St. Petersburg, 1,936 823
Hamburg, 250 125
Gothenburg, 25 rns. 18
Boston, 100 45
**Tar Oil**
Boston, 500 cks. £319
Marseilles, 99 75
**Toluol and Naphtha**
Calais, 50 rns. £163

**Copper Sulphate—**
Treport, 8 t. 4 c. £140
Antwerp, 2 11 36
Launceston, 1 15
Sydney, 1 2 17
Lisbon, 5 69

**Corrosive Sublimate—**
B. Ayres, 3 c. £38

**Cream of Tartar—**
E. London, 3 kgs. £13
Townsville, 3 c. 14
Launceston, 15 63
Rockhampton, 1 t. 5 118
Brisbane, 15 pkgs. 64
Sydney, 1 8 121
Melbourne, 3 10 297
Adelaide, 15 72

**Disinfectants—**
Sydney, 52 pkgs. 5 cks. £100
Melbourne, 50 dms. 16
Kingston, 100 drs. 91
Oporto, 3 cs. 34
San Francisco, 75 34
Brisbane, 3 24
Hamburg, 140 bgs. 252 1,337

**Gypsum—**
Jersey, 10 t. £14

**Manure—**
Treport, 69 t. 16 c. £490
Malaga, 78 1 625
Huelva, 101 11 400
Paris, 25 17 195
Auckland, 40 300
Hamburg, 100 1,000
Denia, 250 2,000
Gandia, 250 2,000
Forton, 12 10
Philadelphia, 3 10 16
Jamaica, 35 380
Bordeaux, 60 300
Rouen, 221 990
Hamburg, 150 1,500
Jersey, 68 266

**Nitric Acid—**
Melbourne, 20 cs. £49

**Potash Crystals—**
Halifax, 4 c. £10

**Potassium Bicarbonate—**
Philadelphia, 14 c. £21

**Potassium Chlorate—**
Calcutta, 5 c. £15
New York, 2 t. 113

**Salt Cake—**
Ghent, 60 t. £90

**Saltpetre—**
Oporto, 5 t. 13 c. £114
Natal, 3 65
Launceston, 10 11
Gothenburg, 1 21
Carthagena, 1 17 42
Melbourne, 5 14 118
Lisbon, 3 13 74
Rotterdam, 2 2 44

**Salts of Soda & Lime—**
Montreal, 5 cs. 10 cks. £166
New York, 2 5 74

**Sheep Dip—**
E. London, 1 t. 6 c. 165 cs. £532
Pt. Elizabeth, 192 576
Sydney, 500 1,500
Cape Town, 110 drs. 90 310
Kingston, 30 pkgs. 11
Calcutta, 60 36
Algoa Bay, 15 5 t. 16 c. 237
Wellington, 6 cks. 38

**Soda—**
Algoa Bay, 1 t. 2 c. £18
Cape Town, 1 13 6

**Soda Alkali—**
Pt. Said, 1 t. £7

**Soda Ash—**
Townsville, 10 t. 2 c. £74
M. Video, 1 4 10

**Soda Salts—**
New York, 3 t. 9 c. £40

**Sodium Bicarbonate—**
Montreal, 15 c. £6
Townsville, 4 t. 26
Sydney, 10 10
Auckland, 2 37

**Sodium Carbonate—**
Adelaide, 5 c. £15

**Sodium Hyposulphite—**
Montreal, 1 t. 1 c. £11

**Sodium Salicylate—**
Melbourne, 1 c. £28

**Sodium Sulphate—**
New York, 50 t. £130

**Strontium Nitrate—**
Calcutta, 18 c. £27
New York, 10 t. 6 301

**Sulphur—**
Sydney, 3 c. £9
Natal, 1 t. 9

**Sulphuric Acid—**
Penang, 3 t. 11 c. 15 cs. £31

**Tartaric Acid—**
Maryborough, 3 c. £22
Brisbane, 15 pkgs. 2 92
Rosario, 6 30
Rockhampton, 5 24
B. Ayres, 4 t. 415
Melbourne, 3 10 360
Sydney, 2 4 225

## LIVERPOOL.

*Week ending September 28th.*

**Acetic Acid—**
Mexico City, 11 c. £5

**Alkali—**
Mexico City, 12 c. £9

**Alkali Waste—**
Copenhagen, 7 t. 3 c. 2 q. £29

**Alum—**
Seville, 3 t. 2 c. 2 q. £13
Calcutta, 20 15 103
Bombay, 11 5 60
Galatz, 1 12 8
Malta, 2 10
Capetown, 1 6 7

**Alum Cake—**
Havana, 4 t. 8 c. 1 q. £23

**Aluminoferric—**
Montreal, 20 t. 2 c. £60

**Ammonium Carbonate—**
Bombay, 2 cs. £5

**Ammonium Chloride—**
Seville, 10 c. 3 q. £17
Barcelona, 3 t. 5 102
Hamburg, 110 7 2 1,210
Malaga, 100 7 1 1,100
Rosario, 10 17
Trieste, 2 2 3 66
Philadelphia, 13 3 2 324

**Ammonium Sulphate—**
Malaga, 100 t. £1,200
Nantes, 25 6 265
Hamburg, 50 5 1 503
Bordeaux, 15 8 1 150
Montreal, 5 6 1 50
Valencia, 60 11 3 610
Genoa, 10 4 2 110
Rouen, 20 200
Leghorn, 40 4 435
Barcelona, 50 7 497

**Antimony—**
Bombay, 1 ck.
Santiago de Cuba, 1 cs.
Shanghai, 1

**Arsenic—**
B. Ayres, 2 t. 3 c. £30

**Asbestos—**
Calcutta, 1 cs.
M. Video, 6 bgs.
Rangoon, 1 frm.

**Bisulphite of Lime—**
Rangoon, 1 t. 5 c. £25

**Bleaching Powder—**
Baltimore, 149 cks.
Boston, 534
Chicago, 100 brls. 30 bxs.
Hamburg, 151
New York, 278
Philadelphia, 10 85 cs.
Rotterdam, 41
Stettin, 37
Havana, 20 10
Leghorn, 1
Naples, 9

**Bone Ash—**
Marseilles, 2 t. 3 c. £38

**Boracic Acid—**
Havana, 4 c. 2 q. £8
Antwerp, 1 t. 2 2 42
Montreal, 10 19

**Borax—**
Christiania, 4 cks. £23
Newfairwater, 1 t. 5 c. 37
Rosario, 9 1 q. 15

**Calcined Magnesia—**
Constantinople, 38 lbs. £39

**Calcium Chloride—**
Capetown, 3 t. 1 c. £7
Boston, 10 22
Melbourne, 5 2 15

**Caoutchouc—**
Alexandria, 5 cks.
St. John's, Nfld., 1 bx

**Carbolic Acid—**
Gibraltar, 7 cs. £16
Rosario, 15 c. 2 q. £24
Barcelona, 3 9 1 300
Hamburg, 12 3 2 549
Baltimore, 36 cs. 215
Rotterdam, 8 14 2 304
Philadelphia, 6 1 68
Montreal, 2 2 80
New York, 15 15 2 719

**Caustic Potash—**
New York, 5 t. 12 c. £193
Rio de Janeiro, 1 2 q. 28
Victoria, B.C., 5 6

**Caustic Soda—**
Adelaide, 52 dms.
Bombay, 212
Brisbane, 35
Capetown, 2 cs.
Chicago, 10 brls. 50 bxs.
Gefle, 15 75
Gijon, 40
Havana, 80
Malta, 49
Marseilles, 10
New Orleans, 150
" York, 250

Philadelphia, 100 20 cs.
Puerto Cabello, 4
Rouen, 34
Seville, 370
Valparaiso, 50 70 kgs.
Yokohama, 100
Ancona, 15
Barcelona, 200
Beyrout, 100
Bilbao, 28
Boston, 50
Fairweather, 72
Honolulu, 34
Manilla, 150
Milwaukee, 200
Oporto, 30
Progreso, 45
Rio de Janeiro, 4
Rosario, 20
Wellington, 36

**Chemicals** (*otherwise undescribed*)
Mersyne, 10 c. £16
Danzig, 5 8
Hamburg, 5 9
Rotterdam, 15 25
Antwerp, 10 18
Bilbao, 52 cs. 120
Riga, 15 24
Piræus, 1 t. 32
Alexandria, 1 33
Naples, 9 14

**China Clay**—
Bombay, 204 cks.
Colombo, 20
Halifax, 400 t.
Norrkoping, 20
Porto Alegre, 3
Boston, 201
Calcutta, 728
Pernambuco, 11 t. 16 c.

**Chloride of Lime**—
Pisco, 1 t. 1 q. £10

**Chloroform**—
Montreal, 2 cs.
Valparaiso, 2

**Coal Products**—
**Aniline Colours**
Boston, 3 brls. 2 kgs.
Bombay, 3 cs.
Genoa, 1
**Aniline Oil**
Barcelona, 17 cks.
Genoa, 5 dms.
New York, 37
**Aniline Salts**
Magog, 10 cks.
New York, 151 cs.

**Colours**—
Halifax, 1 cs.

**Copperas**—
B. Ayres, 2 t 19 c £10
Alexandretta, 5 11
Alexandria, 4 8

**Copper Sulphate**—
Constantinople, 1 t. £14
Stettin, 5 1 c. 1 q. 70
B. Ayres, 4 66
Santander, 4 18 3 70
Venice, 5 1 3 73
Lisbon, 5 3 3 75
Barcelona, 1 19 3 29
Danzig, 1 14
Calcutta, 5 76
Genoa, 15 11 3 216
Roca, 14 3 11
Catania, 3 16 1 54
Naples, 20 14 299
Rouen, 25 362
Amsterdam, 5 2 71
Pelotas, 7 10
Odessa, 5 6 3 78
Adelaide, 5 71

**Disinfectants**—
Bombay, 2 t. 14 c. £16
New York, 13 7 3 q. 354

**Dried Blood**—
Rouen, 10 t. 1 c. £70

**Dyestuffs**—
**Extracts**
Boston, 85 cks. 30 brls. 1 kg.

**Dyestuffs** (*otherwise undescribed*)
Philadelphia, 1 ck.

**Flowers of Sulphur**—
Vera Cruz, 18 c. £8

**Gypsum**—
New York, 20 t. £180

**Iron Sulphate**—
Syra, 5 t. 6 c. 3 q. £10

**Lime**—
Boston, 45 t. 9 c. £360
Demerara, 22 23
Sierra Leone, 3
Opobo, 3 cks.

**Magnesia**—
Adelaide, 21 cs.
San Francisco, 10

**Magnesium Carbonate**—
Vera Cruz, 5 c. £15
B. Ayres, 5 cs.

**Magnesium Chlorate**—
B. Ayres, 9 c. £21

**Magnesium Sulphate**—
B. Ayres, 1 cs.
Calcutta, 3 cks.
Bombay, 50 kgs.

**Mica**—
Halifax, 1 cs.

**Mineral White**—
Montreal, 38 cks.

**Muriate of Lime**—
M. Video, 7 t. 13 c. £18

**Paint**—
Addah, 93 kgs.
Bonny, 3 brls.
Calcutta, 20 cs. 144
Cienfuegos, 2 cks.
E. London, 1
Ghent, 13
Hong Kong, 210
Malta, 50
Matadi, 5 dms.
Mazatlan, 2
Monrovia, 20
Montreal, 82
New York, 1 brl. 6
Port au Prince, 6
Bombay, 5
Boston, 4
B. Ayres, 26
Callao, 64 cs.
Capetown, 13
Degama, 9
Demerara, 11
Galatz, 10
Havana, 2 brls.
M. Video, 7
Ponce, 5
Pt. Limon, 180
Rotterdam, 1 cs. 23
Taltal, 31 bxs. 1
Victoria, 1 cs. 15

**Painters' Colours**—
Areceibo, 2 brls.
Bathurst, 4 kgs.
Bombay, 7 cs.
Bonny, 1 dm. 12 cs. 5 cans 2 kgs.
Guantamano, 4 brls.
Leghorn, 32 cks.
Marseilles, 50 bgs.
Naples, 25 brls.
New York, 1 kg. 56 200 54 pkgs. 12 cs.
Para, 104 kgs. 10 7 5 tcs.
Petit Grove, 2
Philadelphia, 29 25 kgs.
Piræus, 10
Rio de Janeiro, 63
St. John's, Nfld., 36 25 72 dms. 3 cs.
Salonica, 2
San Francisco, 125
Smyrna, 100 kgs.
Talcahuano, 5 cs. 43 3
Valparaiso, 112 74 55 cks. 180
Vera Cruz, 1 8
B. Ayres, 25 cks. 92 brls.
Genoa, 2 cs. 2
Lagos, 5 dms. 151 kgs.
M. Video, 14 cs. 5 7
Porto Alegre, 1 15
Sierra Leone, 59 pkgs.
Sourabaya, 100
Toronto, 7
Vigo, 4

**Paraffin Wax**—
Naples, 5 cs.
Constantinople, 25 bgs.
Para, 19
Rouen, 5
Venice, 6

**Phosphorus**—
Vera Cruz, 5 cs. £55

**Pitch**—
Port de Bor, 902 t.
Sierra Leone, 5 brls.

**Potassium Bichromate**—
Seville, 14 c. £31
Piræus, 5 11
Syra, 5 11

**Potassium Carbonate**—
New York, 20 t. 5 c. £397
Adelaide, 10 10

**Potassium Chlorate**—
Corunna, 10 c. £35
Philadelphia, 3 t. 3 172
Amsterdam, 4 11
New York, 9 466
St. Petersburg, 17 10 997

**Salt**—
Algoa Bay, 5 t. 25 sks.
Belize, 115
Boston, 200
Brussels, 50 cs.
B. Ayres, 107 c. 250
Cabenda, 37½
Calcutta, 10,542
C. C. Castle, 11¼
Demerara, 15¾
Dubreka, 250
E. London, 48¼ 17
Gaboon, 61½
Gothenburg, 2
Hamburg, 137¼
Honolulu, 13
Kingston, 5
Loango, 17½
Malta, 5
Montreal, 999
Mossel Bay, 22¼
Newcastle, 517¾
New Orleans, 550
,, York, 60
Old Calabar, 300
Para, 763
Pt. Elizabeth, 17
Rotterdam, 394
St. John's, N.B., 506 3
Saltpond, 17½
Shanghai, 10 cs.
Sierra Leone, 100
Stockholm, 19½
Svendborg, 260
Adelaide, 47
Antwerp, 490 5,000
Bakana, 17
Barbadoes, 249 2,999
Capetown, 30
Charlottetown, 250
Chicago, 260
Cincinatti, 100
Faroe Islands, 70
Frederica, 360
Fredrikskald, 175
Ghent, 200
Pt. Natal, 20
Rangoon, 1,000
Salt Pond, 12¼
Wilmington, 350

**Salt Cake**—
Baltimore, 90 t. £203
,, 382 2 c. 927

**Saltpetre**—
Pernambuco, 5 t. 5 c. £140
Santander, 10 11
Maranham, 8 9
Santos, 2 10 55
Para, 4 5
Porto Alegre, 1 2 3 32

**Sheep Dip**—
Galveston, 25 bgs. £58
Punta Arenas, 5 t. 4 c. 187

**Silicate of Iron**—
New York, 7 t. 19 c. 1 q. £34

**Size**—
Rouen, 20 cks.

**Soap**—
Adelaide, 3 bxs.
Alexandria, 54 9 cs.
Barbadoes, 600
Belize, 1,340
Bombay, 1,745 27 cks.
Bonny, 1
Brussels, 400
B. Ayres, 11
Calcutta, 3 250 bdls.
Capetown, 1,627
E. London, 556
Gibraltar, 690
Gr. Bassa, 160
Lagos, 50
Malta, 12
Monrovia, 55 5
Mossel Bay, 100
Nassau, 20 1
New York, 500 12 6 cks.
Penang, 10
Piræus, 1
Pt. Natal, 972 35
Rotterdam, 5 40
St. Thomas, 3
San Fernando, 200
Sav. la Mar, 300
Shanghai, 934
Sierra Leone, 240 4
Sinoe, 40
Trinidad, 250
Valparaiso, 50 20 fkns.
Algoa Bay, 607
Bermuda, 90
Buguma, 112
C. C. Castle, 50
Cape Lahon, 30
Cavite, 3 tcs.
Demerara, 2,100
Genoa, 49
Guayaquil, 450
Iquique, 81
Kingston, 220
Macassar, 2,000
Magog, 3 c
Opobo, 200
Pt. Antonio, 50
,, Said, 40
Rouen, 23
St. John's, Nfld., 230 12
Salt Pond, 240
Singapore, 300
Sourabaya, 1,400
Syra, 10 pkgs.

**Soda Alkali**—
Callao, 35 brls.
Melbourne, 40
Montreal, 50
Odessa, 200
Smyrna, 35
Sydney, 50
Syra, 15

**Soda Ash**—
Baltimore, 268 cks. 1,000 bgs.
Boston, 358 600
Fenelon,
Havana, 6
La Plata, 25 brls.
Magog, 13
M. Video, 10
Montreal, 44 80
Napanee, 12
Newcastle, 5
New York, 841 2,330 1
Philadelphia, 177
Sydney,
Toronto, 52
Beyrout,
Brisbane, 22
B. Ayres, 50
Calamata,
Callao, 59
Copenhagen, 5
Pacalongan, 20
Pt. Colbourne, 20
Rio de Janeiro, 40
Smyrna, 250
Syra, 15
Talcahuano, 20
Yokohama, 100

**Soda Crystals**—
Boston, 530 brls.
Brantford, 50 kgs.
Halifax, 105 bgs.
Hamilton, O., 100
Honolulu, 10 brls.
M. Video, 10
Montreal, 100
New Orleans, 1
,, York, 140
Rosario, 50
St. John's, Nfld., 2 cs. 10
Toronto, 200 kgs.
Adelaide, 67
Batavia, 50
Bombay, 20
B. Ayres, 25
Calcutta, 67
Salonica, 14
Gijon, 2 t. 2 c.

**Sodium Biborate**—
Sydney, 1 t. 5 c.
Antwerp, 5 3 1 q.
Gijon, 4 8
Montreal, 4 11 3

**Sodium Bicarbonate**—
B. Ayres, 50 kgs. 19 cks.
Genoa, 70
Halifax, 150
Hamilton, O., 105 6
Havre, 170
Melbourne, 340
Messina, 10
M. Video, 60 3
Odessa, 50
Rosario, 200
Rotterdam, 40
Syra, 20
Toronto, 250
Adelaide, 50
Antwerp, 205 13
Barcelona, 126
Bombay, 20
Brisbane, 50
Calcutta, 1,000
Charlottetown, 50
Copenhagen, 180 19
Danzig, 40
Durban, 40
Honolulu, 140
Pt. Colbourne, 18
St. John's, Nfld., 10
Stettin, 15 1

**Sodium Carbonate**—
Gijon 15 c. 2 q.

**Chlorate—**
20 kgs.
;, 2
50
**Nitrate—**
k, 18 c. 4 q. £27
**Silicate—**
, 20 cks.
33
a, 86 188 brls.
na, 5
10
32
hia, 49 52 dms.
40
10 35
22
, 25
20
**Sulphate—**
, 10 t. 2 c. 3 q. £24
50 cks.
**of Lime—**
, 90 t. £270
—
uco, 1 t. 5 c. £15
1 7 6
200 5 931
35 3 196
uco, 2 7 3 24
**ic Acid—**
108 galns. £26
**osphate of Lime—**
, 117 t. 3 q. £249
29 5 c. 1 82
-
ia, 31 brls.
10 kgs.
1 ck.
2 tcs.
**Acid—**
1 c. 3 q. £9
35 brls.
170
3
45 t. 18 c.
one, 8 brls.
**s—**
4 cs. £25
**Acid—**
2 kgs. £10
22 bgs.
**ine—**
2 cs.
, 25 dms.
gen, 4 brls.
m, 5
—
4 cs.
, 1 1 dm.
**ead—**
13 cks.
, 20 4 tcs.
**de—**
m, 6 kgs.

## LASGOW.

*ending September 29th.*

**um Sulphate—**
121½ t. £1,215
c, 10 2 c. 115
, 121 6¾ 1,221
**e—**
c, 9 t. 9 c. £199
urg, 14 5¾ 537
, 17 12 661
, 6 13½ 194
**Acid—**
ia, 5 brls. £17
**ls** *(otherwise undescribed)*
1 t. £21
**latte—**
m, 9 t. 19 c. £497. 10s.
—
c, 225 t. 2 c. £400
**Oil—**
ia, 30 brls. £13
**s—**
ie
, 16 bls. £21
**cts**
2 t. 8¾ c. £91
l, 17 13½ 442
**Extract**
1 t. 2¾ c. £46

**Farina—**
Antwerp, 1 t. 16 c. £25
**Iodine Compound—**
Bombay, 2¾ c. £80
**Lead Acetate—**
Bombay, 4 t. 1¾ c. £63
**Linseed Oil—**
M. Video, 4 t. 13 c. £92
Cape Colony, 2 14 94
**Litharge—**
Montreal, 13 t. 7¾ c. £193
**Magnesium Sulphate—**
Christiania, 10 t. £31
**Paint—**
Calcutta, 9 t. 16¾ c. £141
M. Video, 12 7 149
New York, 68
Colombo, 2 5 £31. 13s.
**Painters' Colours—**
Singapore, 6 t. 13 c. £117
Hong Kong, 3 15 58
Cape Colony, 1 8 £35. 13s.
Natal, 45
Calcutta, 4 12 53
**Paraffin Wax**
Cape Colony, 4 t. 9¾ c. £175
Valencia, 2 54
**Pitch—**
Christiania, 15 t. £26
Amsterdam, 150 225
**Potash Salts—**
Cape Colony, 35 t. £4,602
**Rosin—**
Bombay, 42 t. 6 c. £231
**Rosin Oil—**
Rotterdam, 10 brls. £10
**Salt—**
Tuborg, 125 t.
**Saltcake—**
Antwerp, 265 t. 4½ c. £530
**Soda—**
Calcutta, 1 t. 1 c. £5
**Soda Ash—**
M. Video, 65 t. 1 c. £402
**Tallow—**
Rotterdam, 4 t. 14 c. £130
**Tar—**
Sandefjord, 20 brls. £12
Calcutta, 50
**Yarnish—**
Christiania, 1 t. £4
Cape Colony, 34
**White Lead—**
Cape Colony, 7 t. 2 c. £99

## HULL.

*Week ending September 24th.*

**Alkali—**
Trieste, 30 dms.
**Aluminium—**
Hamburg, 2 cks.
**Benzol—**
Rotterdam, 25 cks.
**Bleaching Powder—**
Bremen, 30 cks.
Gothenburg, 14
Stettin, 115
Trieste, 10
Venice, 4.
**Caustic Soda—**
Abo, 40 dms. 14 cks.
Bari, 18
Hango, 5 3
Libau, 66
Stettin, 31
**Chemicals** *(otherwise undescribed)*
Abo, 6 cks.
Amsterdam, 24 20 pks.
Antwerp, 2 cs.
Bremen, 15 2
Bordeaux, 30
Christiania, 7 10 pkgs. 154 slbs.
Catania, 10
Gothenburg, 84 4 12 kgs.
Hamburg, 14 228 20 10 pks.
Libau, 21 220
Marseilles, 1
Naples, 1
Palermo, 4
Rouen, 3
Rotterdam, 75 49
Stettin, 115 126
Trieste, 9

**Cottonseed Oil—**
Antwerp, 749 c.
Bremen, 170
Christiania, 17
Gothenburg, 220
Hamburg, 1,013
Marseilles, 950
Naples. 68
Rotterdam, 1,610
Stockholm, 50
Stettin, 34
Trieste, 1,554
**Creosote—**
Amsterdam, 50 cks.
Christiania, 21
Hamburg, 15
Rotterdam, 117
Stettin, 20
**Cresylic Acid—**
Bremen, 27 cks.
**Dyestuffs** *(otherwise undescribed)*
Christiania, 2 cks. 30 bls.
Hamburg, 3
Rouen, 1
Rotterdam, 1 kg.
Stettin, 40
**Guano—**
Dunkirk, 20 t.
**Linseed Oil—**
Antwerp, 103 c.
Bremen, 208
Christiania, 430
Drontheim, 104
Hamburg, 51
Naples, 13
Rotterdam, 41
Trieste, 173
Aalesund, 17
**Manure—**
Genoa, 20 t.
Hamburg, 30 c.
Rouen, 35
Stettin, 66
**Mineral White—**
Harlingen, 200 bls.
**Painters' Colours—**
Abo, 15 cks.
Aalesund, 1
Antwerp, 52 68 pkgs. 5 cs.
Bordeaux, 24
Christiania, 4 60 pks.
Dunkirk, 8
Drontheim, 1
Genoa, 4
Gothenburg, 1 5
Hamburg, 6
Leghorn, 22
Libau, 40
New York, 70
Rotterdam, 6
Stockholm, 1 2
St. Petersburg, 80
Stettin, 6 2 1
Trieste, 8
**Paraffin Wax—**
Abo, 30 cks.
**Pitch—**
Antwerp, 67 t.
Dunkirk, 92
**Salt—**
Abo, 50 bls.
**Size—**
Antwerp, 4 cks.
Bremen, 15
**Soap—**
Gothenburg, 2 cs.
**Superphosphate—**
Helsingfors, 250 t.
**Tallow—**
Gothenburg, 11 cks.
Rotterdam, 90
**Tar—**
Antwerp, 1 ck.
Rotterdam, 3
**Yarnish—**
Antwerp, 5 cs.
Naples, 14
Rouen, 1 ck.
**Zinc Chlorate—**
Harlingen, 20 cks.

## TYNE.

*Week ending September 24th.*

**Alkali—**
Christiania, 20 t. 8 c.
Rotterdam, 3 5
Genoa, 3 12

**Alumina Sulphate—**
Venice, 2 t. 13 c.
**Ammonium Chloride—**
St. Petersburg, 5 t. 19 c.
**Barytes**
Antwerp, 6 t. 2 c.
St. Petersburg, 5 13
Rotterdam, 50
**Bleaching Powder—**
Antwerp, 47 t. 19 c.
St. Petersburg, 150 9
Bergen, 6 19
Christiania, 70 13
Odense, 16 1
Konigsberg, 8 10
Horsens, 2 8
Rotterdam, 14 15
Trondhjeim, 10 4
Copenhagen, 87 6
Venice, 1 10
Gothenburg, 5 4
**Caustic Soda—**
St. Petersburg, 240 t. 19 c.
Konigsberg, 11 12
Rotterdam, 12 3
Bergen, 6
Trondhjeim, 4 18
Copenhagen, 7 5
Venice, 21 15
Genoa, 20 6
**Colours—**
Rotterdam, 12 c.
Copenhagen, 3 t. 10
**Litharge—**
Copenhagen, 12 c.
**Naphthalene—**
Riga, 25 t. 6 c.
**Paint—**
Christiania, 17 c.
Genoa, 1 t. 5
**Soda—**
Rotterdam, 5 t. 4 c.
Christiania, 10 2
**Soda Ash—**
Bergen, 4 t. 1 c.
Konigsberg, 61 3
Venice, 41 15
**Sodium Hyposulphite—**
Antwerp, 7 t. 10 c.
**Sodium Sulphate—**
Norrkoping, 450 t. 9 c.
Aarhuus, 1 19
**Sulphur—**
Rotterdam, 81 t.
Antwerp, 30
Christiania, 1
Gothenburg, 10
**White Lead—**
Bergen, 10 c.

## GOOLE.

*Week ending September 14th.*

**Alkali—**
Dunkirk, 30 dms.
**Benzol—**
Rotterdam, 25 cks.
**Bleaching Preparations—**
Antwerp, 41 cks.
**Chemicals** *(otherwise undescribed)*
Hamburg, 291 cks.
Rotterdam, 9
**Coal Products** *(otherwise undesc'd.)*
Ghent, 1 ck.
**Dyestuffs** *(otherwise undescribed)*
Boulogne, 2 cks.
Ghent, 10
Hamburg, 108 2 cs. 2 dms.
Rotterdam, 23 2 pkgs.
**Manure—**
Dunkirk, 392 bgs.
Helsingborg, 300 t.
Nantes, 1,400

## GRIMSBY.

*Week ending September 17th.*

**Chemicals** *(otherwise undescribed)*
Dieppe, 6 cs. 1 ck. 240 pkgs.
Hamburg, 4 25 2
**Coal Products** *(otherwise undesc'd.)*
Dieppe, 153 cks. 6 cs.
**Dyestuffs** *(otherwise undescribed)*
Dieppe, 5 cks. 32 bgs.

# PRICES CURRENT.

WEDNESDAY, Oct. 5th, 1892

Prepared by Higginbottom and Co., 116, Portland Street, Manchester.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids:—** | | | | |
| Acetic, 25 % and 40 % | per cwt. | 7/- & | 11/- | |
| ,, Glacial | ,, | | 50/- | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 %) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ( ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 15 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 1 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & | 33/- | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 10 | 2 | 6 |
| ,, ,, (grey) Hull | ,, | 10 | 2 | 6 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to | 75/- | |
| Bleaching Powder, 35 % | nett ,, | 8 | 7 | 6 |
| ,, Liquor, 7 % | ,, | 3 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to | 35/- | |
| **Coal Tar Dyes:—** | | | | |
| Al zarine (artificial) 20 % | per lb. | 0 | 0 | 8¾ |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 9½ |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 7 |
| ,, 50/90 ,, | ,, | 0 | 1 | 4 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 5½ |
| ,, (crude 60°) | per gallon | 0 | 1 | 6 |
| Creosote (ordinary) | ,, | 0 | 0 | 1½ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 1 | 0 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 43 | 17 | 6 |
| ,, Sulphate | ,, | 15 | 5 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 12 | 6 |
| ,, Litharge Flake (ex ship) | ,, | 14 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, (brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |

| | | £ | s. | d. |
|---|---|---|---|---|
| Lime, Acetate (brown) | per ton | 6 | 0 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 4 | 0 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 4 | 3 |
| **Oils:—** | | | | |
| Cotton-seed | per ton | 20 | 0 | 0 |
| Linseed | ,, | 20 | 0 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 7½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 12 | 6 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 | 0 |
| Silver (metal) | per oz. | 0 | 3 | 2½ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 7 | 6 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 6 | 0 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 18 | 10 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 15 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Borate (Borax) | net, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) net pr. ton (10 ton lots) | | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) ,, ,, ,, (10 ton lots) | | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) ,, ,, ,, (10 ton lots) | | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) ,, ,, (10 ton lots) | | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) ,, (10 ton lots) | | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 15 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 4½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¾ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 15 | 0 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7¼ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7½ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone: Best Quality (nominal) | ,, | 5 | 0 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 95 | 0 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 18 | 10 | 0 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# HEMICAL TRADE JOURNAL

AND

## OIL, PAINT and COLOUR REVIEW.

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82. SATURDAY, OCTOBER 15, 1892. Vol. XI.

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nts intended for insertion in the current week's issue ıe office by **Wednesday morning** at the latest.

## "BY YOUR LEAVE, GENTLEMEN."

AN episode of the past week, conjured up by a recent Act of Parliament, shows us how careful we should be in giving unlimited powers to departmental officials. The case in point has arisen through the prosecution of the Bury (Lanc.) Corporation by the Mersey and Irwell Joint Committee, in that the said Corporation did cause and allow to fall into the river Irwell liquid unpurified sewage.

In the course of the hearing before the magistrates, it transpired that a few years ago the Corporation of Bury had selected the "International" system as a method by which to purify the sewage of the borough; plans were prepared and about 18 or 19 acres of land secured for the purpose, and after a prolonged Government enquiry, the sanction of the Local Goverment Board was withheld on the ground that the amount of land was inadequate for the purpose. Thinking, perhaps, that the Board were under some misapprehension as to the method to be employed, the town clerk wrote stating that "polarite" filters were to be employed, but the reply of the Board was that it could not sanction a loan for the purpose described.

During the progress of the case last week, several of the witnesses for the prosecution were cross-examined upon the merits or demerits of the "International" process, and they one and all admitted its merits as one of the best, if not *the* best sewage purification process. One witness, an officer of the Mersey and Irwell Joint Committee, stated as his opinion that for a town like Bury less than eight acres would be ample.

We are here brought face to face with a difficulty which demands the serious consideration of our leading sanitarians. A large Corporation, acting in the best interests of its citizens, desires to purify its sewage matter in a way acknowledged by all experts in such matters to be, to say the least, good, but their best endeavours are paralysed by the action of a Government department who, professing superior knowledge, exercise that veto which Parliament has unfortunately allowed it to exercise. The matter does not, however, end here. In the interim, another Act of Parliament comes into force, and under its provisions the defendant Corporation stands a chance of being fined heavily for not doing what it wanted to do, but what the Local Government Board says in effect it shall not do.

It was hinted in open court that if the matter were again brought before the Local Government Board the Department would probably re-consider its decision; but it will be acknowledged on all sides that a method of first rejecting and then accepting a scheme, carefully and diligently prepared, at great cost, will not impress those interested, with the excessive wisdom of the Court of Inquiry, or even with its utility. In fact, many have been asking for some years whether these Local Government Board enquiries are worth the money they cost to the nation, and whether the existing

machinery should not be abolished to make way for a better order of things.

Of course it is thoroughly understood that the Board, as a Board, politically ever changing, cannot possibly have an opinion apart from some one or more of its advisers, and when a scheme such as that advanced by the Bury Corporation is rejected, the public have a right to know upon whose opinions such rejection takes place. This is all the more necessary as it is possible that some new but very excellent process may be stifled in its infancy, owing to the lack of knowledge, or even perhaps the partiality of the adviser to whom the matter is relegated.

This incident should be a lesson to Government departments generally. The history of the past will tell of many an extravagant and misapplied loan, sanctioned by the Local Government Board, for dealing with sewage; and if this department would only pay greater attention that the loans it sanctions are employed in an effective manner, it would earn the thanks of a generation. As a matter of fact, a scheme is often sprung upon the inspector appointed to hold the enquiry, plans of a few tanks are exhibited, and if there is no opposition, the scheme is sure to be passed. What takes place afterwards very few know, and perhaps fewer still care. We have known cases where the sewage has been run straight through the costly tanks into the river, without any attempt at treatment; others in which the "storm overflows" were allowed to be always open, others where the processes were carried on during the day, and the subsidence tanks flushed out into the river every night, while there are others, which though having cost fabulous sums of money, are only put into operation just before the arrival of some important deputation, and some of our readers may be able to testify to the fact of these even having been stopped again before the deputation had left the precincts of the works.

Another case amused us greatly a few months ago. We were passing a small sewage purification works, not a thousand miles from Manchester, and at a distance we were struck with the luxuriant crop of grass near the bank of the river. On going over to examine the cause, we found the sludge tanks filled up to the very top with solids, and upon the surface thereof a crop of grass that had not been the product of one season. The sewage, it may be unnecessary to add, was found passing direct into the stream.

The issue of the Bury prosecution may now help to focus the question anew, but at all events, the department having special care of this momentous subject, will have to justify the wisdom of its decisions, when it is asked again "By your leave, gentlemen."

## POLLUTION OF THE RIVERS IRWELL AND ROACH

### The Bury Corporation Prosecuted

At the Bury Police Court on October 6th and 13th, the hearing of the summons brought against the Bury Corporation by the Rivers Mersey and Irwell Joint Committee took place. Mr. Sutton instructed by Mr. Hulton, clerk to the Joint Committee, prosecuted, and the Corporation were represented by Dr. Pankhurst, who was instructed by the town clerk of Bury.

Mr. Sutton, in stating his case, said that the proceedings which had been taken against the Corporation of Bury were based upon the third section of the second part of the Act of Parliament, which was passed in 1891 at the instance of the Mersey and Irwell Joint Committee. This section provided "that every person who caused to fall or flow, or knowingly permits to fall or flow, or be carried, into any river or stream within the jurisdiction of the Joint Committee, any liquid sewage matter, shall be deemed to have committed an offence ag Act." The maxium penalty for such an offence was, for infringement, £20 and £50. for the second offence, with penalty of 40s. for every day after which the offence was c The Joint Committee did not wish to make any attack on Corporation, but wished to compel Bury to do that wl manifestly its duty. Of the two summonses that were taker Sutton said that without dropping the first, he preferred to re second, which charged the Bury Corporation with being th pollutors of the streams in question. After giving a brief sket enactments which, while forbidding the Bury Corporation to p streams which passed within its boundaries, likewise gave the to construct works for the treatment of sewage, he described ho one Act after another had been passed, only one sewer after had been formed to pour crude sewage into the Rivers Irwell an He also pointed out that the Bury Corporation was the authority within the jurisdiction of the Joint Committee that e not sewage works in operation, or else were preparing to m works within a reasonable time.

Dr. Pankhurst: We have already done more than most of th

Mr. Sutton: That remains to be seen. If the Corporatior can satisfy the Bench, and the Joint Committee that they are to do what is necessary, I should be very glad, as that is all w

Dr. Pankhurst: I was simply making an observation on a fact.

Mr. Sutton, continuing, stated that after the passing of th Pollution Act, in 1876, the Corporation of Salford brought against the Bury Corporation to prevent them polluting th Forthwith the Corporation of Bury applied to the Local Go Board for permission to borrow money in order to purchase construct sewage works, but instead of making these works, down another sewer, thereby increasing the amount of pollutin that was being turned into the Roach and Irwell. The popu the borough in 1891 was 57,200, while the area of the Co comprised 841 acres and 4,994 acres of agricultural land, so th evident they already had ample land on which to treat their It was estimated that the amount of sewage per day, per he population was from 15 to 20 gallons, so that taking the amou gallons, they had a daily discharge into the rivers of one millio of sewage. It was needless to say what the effect of such a must be. In 1887 the Corporation submitted plans, prepare borough surveyor, for dealing with their sewage, to the Local ment Board for approval; while in 1890 the Corporati application for permission to borrow £40,000. to deal w sewage, which was a goodly sum, but not so large as asked for other Corporations. Having gone so far into the matter it wa to understand why the Corporation had stayed their hand, an were angered by the refusal of the Local Government Board to their plans. Later in 1891 the time evidently had arrived people of Lancashire were convinced that the purification of t was a matter of urgent necessity, and in that year an Act wa and a Joint Committee established to deal with the que pollution. In 1892 the same committee gave notice to a n the authorities—of which Bury was one—to take immediate dealing with their sewage. This notice was given on the March, but the Corporation replied that they saw no good in a deputation to the Joint Committee to obtain an extension o which to construct works. This, the learned counsel said, wa way of saying: "We will send no deputation; do your worst Joint Committee thus feeling that the existing Rivers Pollution too slow and uncertain, took steps to obtain a special Act ment under which they could take action before a Court of S Jurisdiction, and thereby deal more speedily and effectually evils of which complaint was made. As to the fact of the itself, agents of the Joint Committee had taken samples of t both before it passed the sewage outfalls and after, and from th obtained there could not be the slightest doubt that the rivers in were seriously polluted by the discharge of sewage. In concl stated that the Joint Committee did not desire to distress e ratepayers of Bury or the Corporation, but if the Corporatio not do their duty, he must ask for an order and the inflic nominal penalty.

Evidence was then called.

Edmund Eccles, a photographer, of Bury produced a series graphs showing the outfalls of the sewers into the rivers Re Irwell. Mr. Hulton, clerk to the Joint Committee, stated th all the public authorities within the jurisdiction of the Mersey a Joint Committee, 29 of them had sewage schemes in operatic schemes in course of construction, and 23 had no schemes, but exception of Bury all these 23 had prepared to carry out the works. In answer to Dr. Pankhurst, witness said he had no knowledge of the schemes in operation or contemplation, regarded, as did the Joint Committee, the application for an of time as *bonâ-fide*.

nkhurst: If the Bury Corporation had gone before your com-
d said "We want more time," would it have been enough?
s: No. Unless they had given an assurance that there was a
intention to carry out their works.
n't know anything about the schemes of the other authorities?
ve information about them.
is Bacup doing, for instance?—We have given them three

expect they will complete their works in three years? Yes.
Bury far ahead of them, having acquired 24 acres years ago
e purposes? Of the places you have mentioned how many
ired land?—I cannot tell at present.
ry, having acquired 24 acres, has done something?—Yes.
ubmitted a scheme, but the Local Government Board declined
n it?—So I believe.
A. Tatton, chief inspector under the Joint Committee, stated
s had been prepared under his supervision showing the out-
ertain sewers within the Corporation area. He had seen the
and in his opinion there would be no difficulty in constructing
orks so as to prevent pollution.
examined: He could not say to what extent the sewage was
He thought that a proportion of 8 to 1 would be satisfactory.
d, where the lime process was used, they did not obtain a
ent. The water of the Irwell was worse below the sewer
han above them. He arrived at this conclusion by his senses
nd smell only.
nkhurst: Supposing I were to say to you the waters of the two
rwell and Roach when they enter Bury and leave it are equally
both points, would you be prepared to deny that?—Yes, I
ny it.
nkhurst: Can you tell me in what respect they differ at these

s: They have more sewage matter below than above I
y.
r examined, witness stated that he did not believe oxidation
e to such an extent as to neutralise the sewage pollution during
ge of the waters through Bury.
illiam Naylor, chief inspector to the Ribble Watershed Joint
ee, Fellow of the Chemical Society, gave the result of the
he had made of samples of the liquid taken in and about
ge outfalls. The liquid was exhibited in bottles and had the
ce of black ink. The smell that he encountered when taking
les was distinctly foul, and his analyses showed that the waters
iously polluted.—In cross-examination Mr. Naylor said he
Dr. Frankland's method of analysis. That was a method fol-
very few analysts.
know anybody except Dr. Frankland and yourself who fol-
plan?—I do.
—His son.—(Laughter.)
then, with the exception of these sacred three, do you know
who follows it?—I cannot call anyone to mind.
oned as to the amount of dilution required to render sewage
, the witness said it would require far more than a proportion
o one; it would be nearer fifty or sixty to one. He could not
much; to make himself safe he would say 1,000 to one.—
r.)
re the river as it leaves Bury with the sewage effluent as it
lford, and is it not as pure as the effluent water from Sal-
dare say it probably is.
u know any effluent from any system on the Irwell bed which
—I should say not.
r examined witness said that he thought the 24 acres of land,
the corporation of Bury proposed to treat their sewage by the
e" system would be sufficient for the purpose. In the opinion
ses five acres would suffice. He had no reason to doubt the
of the polarite system. Re-examined: He had not analysed
r at Salford, and therefore was not prepared to say what its
was. The liquid sewage turned into the river by Bury
a noxious smell, and was detrimental to the health of the
Dr. Sargeant, Medical Officer of Health for the County
of Lancashire, said he had a personal knowledge of Bury and
ed the rivers highly polluted. It was his conviction that they
leaving Bury than when they entered it. In answer to Dr.
st he would not admit, however, that the effluent water from
ge treatment was as bad as the River water at Bury, unless
m was abominally carried out. He did not look at Salford as
e best example of sewage treatment, but even there solid
the amount of thousands of tons was eliminated from the
wage in its passage to the River.
T. Nuttall, civil engineer, gave corroborative evidence as to
. In cross-examination he stated that the Local Board of
tom, with which he was connected, were turning their sewage
d into the River, but they had a sewage scheme in progress.
twright, the Borough Surveyor produced plans of the Bury drains showing that no attempt was made to treat the sewage before it passed into the Rivers. The Town Clerk of Bury also produced resolutions entered in the minute book of the Town Council which had been passed upon this question. This concluded the case for the Joint Committee.

Result:—The Corporation were fined £5. and £20. costs on each summons. Full proceedings will be reported next week.

## USING FLUORIDES IN THE MANUFACTURE OF ALCOHOL.

According to Dr. L. Baekeland soluble fluorides are likely to be utilised for the prevention of acid fermentation in connection with the manufacture of alcohol.

As is well known the temperature of from 50° to 60° C. which is most favourable to the diastatic action of malt, is likewise equally favourable to the growth of harmful acid ferments. Hydrofluoric acid or soluble fluorides however, even in very small quantities, prevent the development of butyric and lactic acids, while at the same time they are completely harmless to the diastase or alcoholic ferment.

Fluorides will in all probability also play an important part in yeast cultivation, more particularly in the separation of certain kinds of yeast, advantage being taken of the difference in the resisting powers of certain vareities of yeast to the action of fluorides. For instance, if a mixture of equal parts of *S. Pastorianus* and *S. Bourton* (whose cells are easily distinguished under the microscope) is kept during 72 hours in a wort containing 300 mgrams. of fluoride per 100 c.c. and afterwards transferred to the wort containing no fluoride, where they are allowed to ferment 48 hours, and this operation repeated say three times, it is possible to eliminate entirely all yeast cells of the *Pastorianus* variety.

In addition to this it is perhaps a still more important fact that yeast can be kept for more than six months with an addition of 200 to 300 mgrams. of fluoride per 100 c.c. The yeast cells at the termination of even such a prolonged period have been found by experiment to be in an excellent state of preservation, and to produce a rapid and altogether satisfactory fermentation.

## ESTIMATION OF CARBON DIOXIDE IN THE AIR OF BUILDINGS.

By Augustus H. Gill, Ph.D.

In the only treatise upon air analysis in the English language, the method given for the determination of carbon dioxide admits of no great accuracy, as results varying 6 per cent. from an average, and 10 per cent. among themselves would indicate. The writer in a paper published by the Journal of Analytical and Applied Chemistry recommends the following method, which has been in use in the laboratory in almost the present form for fifteen years.

Both methods are those of Pettenkofer, which consists in bringing a large known volume of air in contact with standard barium hydrate.

The bottles used for containing the samples are ordinary green glass gallon or two gallon bottles, holding 4,400 or 8,800 c.c. respectively; they are calibrated with water, by weighing upon scales sensitive to 5 grams., and their capacity marked upon them with a diamond. They may be conveniently transported from place to place in a partitioned basket made for the purpose.

The bellows there suggested (wooden discs joined by a strip of rubber, with no valves) was found troublesome to manipulate, and has given way to one about to be described. The nozzle of an ordinary 9 inch blacksmith bellows is removed and the opening fitted with a valve opening outward; this is made by tying a bit of chamois skin over a cork which fits over a tube passing into the nozzle opening. By varying the position of the cork, different degrees of tightness of valve are attained. To the other opening of the bellows, closed with its usual valve, is fitted a cork carrying a four-foot piece of ⅝ inch rubber tubing terminating in a light two-foot brass tube, bent for insertion into the bottles. Instead of the bellows, a small 6 inch fan blower, the driving parts of which are connected by rubber bands to render it noiseless, can be used if it is desired to decrease the bulk of the apparatus.

The bottle is fitted with a rubber stopper, carrying a glass tube, closed by a small unperforated rubber nipple; both the stopper and nipple have been digested with caustic potash and thoroughly washed to remove the superficial zinc oxide.

The air to be tested is drawn into the bottle by means of the bellows, fifteen strokes being taken, sufficing to fill a four litre bottle four times, thus insuring a representative sample. In collecting this sample the atmosphere in the room should be as quiet as possible; care must be exercised to avoid the drafts or the proximity of people.

When used the bottles should be *clean* and *dry*; by clean is understood containing nothing to affect the barium hydrate used. When wet the standard barium hydrate is diluted, and as the whole of it is not used, the determination is lost, unless the amount of water present be accurately known.

The operation of drying the bottles is by no means as troublesome as it would appear. A small closet heated by steam and provided with suction, enabling a current of hot air to be drawn into the bottles, suffices to dry a dozen bottles in half an hour. The samples are brought into the laboratory, the temperature of which should be a little higher than that of the place where they were taken, and allowed to stand half an hour, or until they have attained its temperature.

50 c.c. of the standard barium hydrate are now run in rapidly from a burette (the tip passing entirely through the tube in the stopper), the nipple replaced, and the solution spread completely over the sides of the bottle while waiting three minutes for the draining of the burette, before reading, unless it be graduated to deliver 50 c.c. The bottle is now placed upon its side, and shaken at intervals for 40-60 minutes, taking care that the whole surface of the bottle is moistened with the solution each time. The time of absorption, ten minutes, recommended in the treatise, is much too short, as the disappearance of the last traces of carbon dioxide is very slow indeed, half an hour in many cases being insufficient.

At the time at which the barium hydrate is added, the temperature and pressure should be noted. At the end of the above period, shake well to insure homogeneity of the solution, remove the cap from the tube, and invert the large bottle quickly over a 50 c.c. glass stoppered bottle, so that the solution shall come in contact with the air as little as possible. Without waiting for the bottle to drain, withdraw a portion of 15 or 25 c.c. with a narrow stemmed spherical bulbed pipette and titrate with sulphuric acid* (1 c.c. equals 1 mgm. $CO_2$) using rosolic acid as an indicator. The difference between the number of cubic centimetres of standard acid required to neutralize the amount of barium hydrate (*e.g.*, 50 c.c.) before and after absorption, gives the number of milligrammes of carbon dioxide present in the bottle.

This is expressed in cubic centimetres under standard conditions, and divided by the capacity of the bottle under standard conditions, and the results reported in parts per 10,000. To reduce the air in the bottle to standard conditions, a hygrometric measurement of the air in the room from which the sample was taken, is necessary. This in ordinary cases is usually omitted, as the object of the investigation is *comparative* results, as regards the efficiency of ventilation, and the rooms in the same building would not vary appreciably in the amount of moisture in the atmosphere. This correction may make a difference of about 0·15 parts per 10,000.

Some of the results obtained by our students by the preceding method are as follows:

*Expressed in parts of $CO_2$ per 10,000.*

| Room No. 24. | No. 43. | No. 37. | No. 34. | No. 34. | No. 23. | Outside Air. |
|---|---|---|---|---|---|---|
| 5·54 | 7·34 | 4·94 | 5·16 | 5·53 | 4·54 | 3·13 |
| 5·59 | 7·27 | 4·89 | 5·12 | 5·52 | 4·46 | 3·09 |

The subjoined results are interesting as showing rate of vitiation of the air in a well-ventilated lecture room. It is 15 feet high, having a capacity of 24,000 cubic feet, and supplied with 185,000 feet of air per hour, from three flues; 225 students were present.

| | Time. | Parts $CO_2$ in 10,000. 1st day. | 2nd day. |
|---|---|---|---|
| Before lecture ..... | 11·35 | 3·89 | 4·54 |
| | 12·10 | 6·07 | 9·93 |
| | 12·20 | 8·44 | 10·27 |
| | 12·30 | 11·29 | 10·43 |
| | 12·40 | 11·38 | 10·50 |
| | 12·50 | 10·56 | 10·58 |
| End of lecture ..... | 1·00 | 6·62 | 7·19 |
| | 1·30 | 3·72 | 6·10 |

The following shows the distribution of carbon dioxide in an ordinary theatre:—

| | $CO_2$ per 1,000. |
|---|---|
| Floor ..... | 39·13 parts. |
| First balcony..... | 42·86 ,, |
| Second balcony ..... | 44·72 ,, |
| Gallery ..... | 48·94 ,, |

*Sulphuric acid, in distinction to oxalic acid, enables one to estimate the excess of barium hydrate in presence of the suspended barium carbonate, and also of caustic alkali, which is a frequent impurity of commercial barium hydrate. Professor Johnson, in the American edition of "Fresenius' Quantitative Analysis," calls attention to the fact that the normal alkaline oxalates decompose the alkaline earth carbonates, so that the reaction continues alkaline if the least trace of soda or *potash be present*. The sulphuric acid may be prepared by diluting 46·51 c.c. *normal sulphuric acid to a litre.*

## THE INSTITUTE OF CHEMISTRY.

### EXTRAORDINARY MEETING.

As briefly chronicled in our columns last week, an extraordinary meeting of the Institute of Chemistry was held on Friday, Oct. 7th, at the present rooms serving the association as secretarial offices. We say "rooms" from mere force of habit in speaking of a body of the pretensions of the Institute, but as a matter of fact there is only one room, and that so small that another in the same building had to be borrowed for the purpose of the meeting. With this object lesson before them it is not wonderful that the members felt that the need for shifting their quarters to some more dignified place of abode was real and imperative. It will be remembered that the subject for discussion at the meeting was the advisability of empowering the council to expend a portion of the capital of the Institute, and to undertake responsibilities that would make a considerable inroad upon its surplus income, in order to acquire a building in which the Institute could be housed and its examinations conducted.

### THE CAUSE OF THE REFORM.

There is no reasonable doubt but that the growing discontent at the supineness of the Institute and especially at the slovenly way in which the last two examinations have been conducted (both of which have been vigorously commented upon in this journal) is the immediate cause of the new move. If these two *stimuli* have to be ranged in order of urgency, the palm must be awarded to the protest that we raised with no uncertain voice against an examination apparently designed to hinder the skilful and honest as much as to aid, by sinking their deficiencies in a general sea of blunder and ineptitude, those conditioned by the reverse qualities. Plentiful abuse was our portion at the time, but we were right for all that, and now our policy is being adopted instead of decried. How completely the way has been prepared for the change of front will be obvious from what is recorded below.

### THE VIEWS OF THOSE PRESENT.

Taking the chair twenty minutes after the appointed time, the president (Professor Tilden) opened the meeting by explaining to the Fellows and Associates assembled—about 40 all told—that great difficulty had been experienced in finding a suitable place at which to hold the examination in July last. This difficulty had been tided over by the loan of the City and Guilds Laboratory, at Finsbury, but it was troublesome and undignified to have to beg favours that were granted with some sacrifice of convenience, and no better state of things could be expected until a local habitation was found for the Institute, in which it would have all the rights of ownership. In spite of the short period that had elapsed since the last examination, there were now something like 80 candidates for the Associateship to be dealt with, and these must be provided for somehow. A consideration of the revenue account of the Institute showed that with an income of about £1,100. there was a balance of nearly £400., and it was thought, after careful investigation of the matter by the finance committee, than an expenditure of one fourth of the capital, *i.e.*, £1,600., plus the utilization of this yearly balance, would suffice for the purpose in hand. Of course, it was impracticable to build with that sum, but a lease could be bought and provision made for a sinking fund, so that the expenditure was not absolute in the sense that the money spent in putting down, for example, a works or a tramway was, but was more of the nature of an investment which could be realised when required.

Mr. Groves, the late secretary, criticised the scheme on economical grounds, contending that in the first place the recent addition to the secretary's salary diminished the balance mentioned by the president by £100., and that further there would be the cost of a caretaker, of firing, gas and repairs, to be met, a matter of some moment. If the plan was adopted the Institute would be living up to its total income or even beyond.

Mr. Friswell urged that though the Institute might spend the whole of its income for a time, it was better to do that than to cripple its energies by stinginess. The money was there, and no object would be gained by saving it. Moreover, there was a prospect of new members coming in, and the income increasing accordingly.

Professor Frankland wished to know what was the rate at which the income of the Institute had increased during the last few years. He echoed Mr. Friswell's plea for a liberal policy.

Mr. Carteighe, answering the last speaker, said that the increase had been about £50. a year, but not much reliance could be placed on the regularity of such increase for the future, as special admissions without examination had been made on the occasion of changes in the constitution of the Institute. He added a new argument to those deduced in favour of bold and comprehensive action, by insisting that the examinations must be above suspicion. Mr. Carteighe's attitude in this matter is a valuable endorsement of what we have already said, namely, that by calling attention to the unsatisfactory conditions obtaining at the examinations, we initiated the reform which is now

efinite executive shape. There was room, said the speaker, inor alteration that would smooth the path of the Institute. sent examination fee of two guineas was unduly low; those a liberal profession might reasonably be required to pay an tion fee comparable with that demanded of university graduates; eas was not too much.

president then read a letter from Mr. William Thomson, of ster, urging that good as the scheme was, it scarcely went far A good building was absolutely necessary. A greater fraction fourth of the capital might be expended, and money might be y asking a special subscription from those wealthy chemists who ised with the aims of the Institute in this matter, or a loan a small rate of interest might be created among the members. sident remarked that Mr. Thomson had misapprehended the of the recommendation of the finance committee. It was not d to erect a building, but to acquire a lease.

airley, one of the examiners at the last examination, said that e plain duty of the Institute to see that the examinations were conducted, and that it could not escape from that duty on the it was a costly one.

riswell having then formally put the resolution to the effect *ut* one fourth of the capital of the Institute should be available urpose in hand, Mr. Tyrer rose to a point of order, asking it was advisable to alter the terms of the recommendation been circulated to the members, lest in the end it should be at the action of the meeting had been thereby invalidated. condemned the manner in which the examinations had been conducted.

Iehner said that being a public analyst he knew very well that ople said "about one-fourth," they sometimes meant "nearly ," and supported Mr. Tyrer's contention that the original the notice should stand. Finally this was agreed to, and the n was put to the meeting in its original form, and duly seconded Tyrer.

THE RESULT.

e else was found to speak other than supportingly on the pro- , or to move an amendment, and on being put to the meeting on was carried *nem. con.*, and the members separated marvelling nimity probably unique in the annals of the Institute.

urselves we believe that the step, though a bold one, is in the ection, and we can only trust that the council will act wisely funds placed in its hands.

## MANUFACTURE OF FERROUS SULPHATE.

(*Concluded from page 226.*)

THE FINISHED PRODUCT.

sulphate of iron thus obtained is much purer than that made m burnt shale or burnt pyrites, which usually contains m sulphate; on the other hand, it always retains a small of free acid, which should, in good work, be reduced to as low as possible. Its strength varies from 96—98%, and it gives the g analysis:—

| | |
|---|---|
| Ferrous sulphate, $FeSO_4$ | 52·57 |
| Ferric sulphate, $Fe_2(SO_4)_3$ | 1·82 |
| Free acid, $SO_3$ | 0·42 |
| Water of crystallization | 43·57 |
| Moisture | 1·62 |
| | 100·00 |

ls which have been deposited from a too acid liquor show a en tint which is not willingly accepted by the trade. In order nt this, many manufacturers add a small amount of tannin or to their liquors before setting them to crystallize.

SPECIAL PREPARATIONS.

he last few years a powdered sulphate, made up of very fine has been produced, especially for agricultural purposes, under e of "sulphate of iron snow."

product is obtained by frequently agitating the liquors during ation in flat reservoirs of 30—35 cm. in depth by means of stirrers covered with lead. The liquors may also be artificially rovided that they are continually stirred. For this purpose a f air may be employed, or very concentrated solutions may be directly into the drier. The fineness of the crystals depends n the agitation and the sudden cooling of the liquors.

alphate obtained by either of these methods usually contains a roportion of ferric oxide than the large crystals, but this does y way interfere with its use in agriculture. It enters into the composition of numerous made-up powders which are used against the parasitical diseases of the vine, and which are known as "combined sulphur," "antimildine," etc., all of them being mixtures of sulphur ground up with slaked lime and sulphates of iron and copper.

TREATMENT OF THE SLUDGE.

When tinned iron has been used, the greater portion of the tin, which is not attacked by dilute sulphuric acid, is found in the mud deposited in the solution tanks, and it is profitable to recover this metal, after having washed the mud with hot water in vessels placed beneath the tanks.

Among the numerous processes proposed for this end, there are two which seem to be specially suitable for chemical works. The first consists in treating the dried residues with hydrochloric acid gas at 400°. Chloride of tin is formed, distils over, and is condensed by steam, or received in a dilute solution of the salt, from which tin salts or oxychloride of tin may be made, or from which the metal may be precipitated by zinc.

The second method, which can be conveniently employed in an alkali works, consists in treating the residues with a solution of caustic potash or soda (15—18° B.) at a temperature of 50°.

The oxidation of the tin is favoured by successive blowings with hot air. The temperature rises to 100°, and stannate of potassium or sodium is produced, and remains in solution. The cooled solution is treated with milk of lime, which regenerates caustic soda and precipitates stannate of calcium, which is reduced to metallic tin by treating with slack in an appropriate furnace. The tin may also be precipitated from the alkaline solution by sulphurous acid.

UTILIZING WASTE ACID FROM REFINING TAR, ETC.

The low price of sulphate of iron prevents its manufacture by any but producers of sulphuric acid. The matter, however, is quite feasible when residual acid from some other process can be employed, as is the case in tar and petroleum refineries. Such works produce a large amount of residual sulphuric acid from which no profit is drawn, and which it generally pays to throw away rather than to collect and purify. This acid is of 45—50° B., and is deeply coloured by tarry matters, which can, however, be easily separated by the addition of water. It is then quite suitable for the preparation of sulphate of iron, and is used for this purpose at a works near Douai, where large amounts of this salt are made.

Moreover, the manufacturers of sulphuric acid may obtain the iron necessary for the production of sulphate by treating their burnt pyrites with coal in a suitable furnace, and thus reducing it to the condition of spongy iron, which is very easily attacked by sulphuric acid. Numerous patents have been taken out for this purpose.

Among other sources of sulphate of iron, we may mention the liquors obtained in cleaning iron wire, and the mother liquors from the sulphate of copper process. A considerable quantity of sulphate of iron is produced in France by simply concentrating these liquors and allowing them to crystallize.

## ACID RESISTING PAINT.

A PATENT has recently been taken out by Mr. Rudolph Lender for the preparation of a paint which, it is stated, preserves metals from rust, etc. This paint is unaffected either by heat or cold. When applied to sheet iron it was found that the coating was unaffected by warm water or steam, and also to be unaffected by the action of acid and alkaline liquids, ammonia gas, hydrochloric acid gas, and sulphuretted hydrogen gas. The principal ingredient in this paint is a silicate of iron which is found in the neighbourhood of natural deposits of iron ores, and also occurs in veins, in deposits of granite, which have become decomposed by contact with the air. This deposit, which is employed in the form of a finely ground powder, is found to have the following composition:—

| | |
|---|---|
| Silicic acid | 5·4 |
| Phosphoric acid | 0·05 |
| Oxide of iron | 88·65 |
| Alumina | 0·5 |
| Lime | 1·75 |
| Magnesia | 1·35 |
| Undetermined | 2·3 |
| | 100·000 |

The silicate of iron in a very finely divided state is mixed with oxidised linseed oil, and varnish, to form a paste. When required in the form of paint it is thinned down with good linseed oil, to which, if deemed desirable, a drier, such as litharge, is added, at the same time mineral colours to produce the required shade are likewise added.

## THE WATER SUPPLY OF CHESTER.

On Friday last week, a meeting of the inhabitants of Chester was held at the Town-hall to discuss the water supply of the city. The Duke of Westminster, who presided, was supported by the Bishop of Chester, (Dr. F. J. Jayne), Judge Hughes, Judge Sir Horatio Lloyd, Recorder of Chester, the Dean of Chester, and other leading citizens The Duke of Westminster began by reading a communication received from the Chester Water Company, calling attention to a letter addressed by the directors of the town council in 1890. In this letter the company referred to the work which they had then accomplished with the object of improving the water supply of the city. The filtering area, it was stated, had been largely extended, and was in excess of the requirements of the population of the city as laid down by the engineers of the Local Government Board. The directors expressed their willingness to afford all information, should any inquiry be made, and to meet the council in defraying any expenses they might incur in taking proceedings against persons for polluting the stream. The Duke also read a letter from Dr. Ballard, late inspector of the Local Government Board, stating that his report concerning the Chester water was certainly intended to convey condemnation of the supply. The true danger involved in the use of Chester water lay in this—that, whether its impurity were chemically great or small, constant or varying, there was being thrown continually into the Dee, on both sides, domestic sewage, which at times certainly did, and at any time might, convey disease, producing material which no subsequent flow of the water could render harmless or the most delicate filtration remove. The chairman went on to say that the question of the Chester water supply had come very much more to the front since the epidemic of cholera had threatened the country He was glad to see from the letter he had read that the water company would not only not oppose them in what they proposed to do, but would go so far as to assist them in making an inquiry into the condition of the water. The company had undoubtedly an admirable system of filtration, and provided as good a supply as the difficulties of the case—namely, the taking of their supply from a tainted and impure source—would permit. The question was, could they by any means convert impure water by whatever means they adopted into a drink which should be innocuous to the community? The Bishop moved the following resolution:—"That, in the opinion of this meeting, the Chester water supply is open to such grave suspicion that steps should at once be taken either to remove that suspicion, or, if on further investigation it should be established, to seek a new and purer source of supply." This was carried as well as another resolution appointing a committee to give effect to the decision of the meeting.

# Our Book Shelf.

The Practical Polish and Varnish Maker. By H. C. Standage. 232 pp. Index. London: E. and F. N. Spon. 1892.

One of the first things which an amateur polisher discovers after a very short experience of most of the recipes which he chances to meet with, is that somehow they don't work. There are two items to which the failure may usually be traced, either a desire to see the ultimate effect almost before the task has been fairly begun, whereby essential details are overlooked, or else the recipe is a very crude one, on account of the tendency to preserve such matters as trade secrets. The object of the author has been to give, along with each recipe, such information about the preparation and application of the polish, varnish, or whatever it may be, that provided the simple provisions specified are properly carried out failure cannot result.

In regard to varnishes, so-called oil varnishes are difficult to prepare, and the amateur is advised to leave the preparation of such, should he require them, to the manufacturer, as he will almost inevitably find his endeavours attended with but scanty success. A glance through the extensive list of spirit varnishes, polishes, lacquers, Japans, &c., should certainly content even the most exacting of amateurs, and persuade him to follow the advice given at the outset, and to attempt only those receipts which he can properly execute. To render the work complete from the varnish maker's point of view, however, receipts have been given for the preparation of oil varnishes, which though of little use to the amateur, should be of considerable use to the manufacturer to whom the working details are already well-known. There is no attempt to classify the receipts except under the general heading of polishes, varnishes, lacquers, and the like, but the style in which the work is printed obviates any difficulty on this score.

A short description of the various substances used in the receipts, which prefaces the receipts themselves, adds considerably to the usefulness of the book, especially to the amateur. Each recipe is complete *in itself*, the ingredients being first specified, followed by the method of preparing and using the resulting product. The work cannot fail to be a very useful book to anyone in want of a good varnish, or hints on preserving, renovating, or polishing anything, whether made of wood, metal, marble, or ivory.

Odorographia. By J. C. Sawyer, F.L.S. 375 pp. 13 Illustrations. London: Gurney and Jackson. 1892.

This work is essentially a history of the raw materials and drugs used in the perfume industry, and is intended to be of special service to those employed in growing or utilizing such materials. Hitherto, information on this subject has only been obtainable from a number of widely spread English and Foreign Journals. To this has been added certain information obtained direct from a number of the chief growers and manufacturers at Grasse, Nice, &c., so that the work embodies a great deal of information, which would be absolutely inaccessible to a good many who are interested in the subject.

There are nearly forty different kinds of scent producing materials described, chief among which are the following:—The plants from which the odour of the rose is obtained, violets, vanilla, cinnamon, cassia, cloves, heliotrope, and camphor.

The treatment of each scent producing substance is the same in each case. First, the different botanic species are described, together with the chief places where such plants either occur or are cultivated, following which is the method of cultivation, which in the case of vanilla is of exceptional interest. Next, the essential oils which are extracted are described, and the chemical and physical properties described. Further, in many instances chemical tests for adulterants are given. In the case of oil of Cassia, a full description is given of the method of estimating the rectification residue of a sample. In addition to this, of course, there is an account of the characteristic properties of each odour.

Though this work treats chiefly of the natural sources from which odours are derived, still to make the book more complete, a description of the various artificially prepared scents has been added, the accounts of artificial camphor, musk, heliotrope, oil of bitter almonds, oil of cloves, and rose odours, being among the most important. The book is rather a new departure in one sense, and though much of the information which it contains is hardly new, still the way in which it is presented is much more so, and as a source of general information upon scents and essential oils, we can unhesitatingly recommend it, especially to those having any interest in flower farming and odour yielding trees.

## EXPORTS OF PETROLEUM FROM U.S.A.

The chief Bureau of Statistics, Mr. S. G. Brock, gives the exports of petroleum and petroleum products from the United States during the month of August, 1892, and during the eight months ending August 31st. The total value of the shipments for August was $3,707,472 as against $4,698,348 in 1891, and for the eight months ending August 31st, 1892, $26,847,587 as opposed to $30,176,878 in 1891. The shipments were as follows:—

| | Gallons. |
|---|---|
| **CRUDE PETROLEUM.** | |
| Total for August, 1892 | 13,644,167 |
| Total for August, 1891 | 12,001,847 |
| Total for 8 months ending August 31st, 1892 | 62,898,299 |
| Total for 8 months ending August 31st, 1891 | 54,315,735 |
| **NAPHTHAS.** | |
| Total for August, 1892 | 1,098,887 |
| Total for August, 1891 | 728,785 |
| Total for 8 months ending August 31st, 1892 | 7,155,336 |
| Total for 8 months ending August 31st, 1891 | 5,392,796 |
| **ILLUMINATING.** | |
| Total for August, 1892 | 51,143,549 |
| Total for August, 1891 | 58,105,383 |
| Total for 8 months ending August 31st, 1892 | 366,354,028 |
| Total for 8 months ending August 31st, 1891 | 347,313,599 |
| **LUBRICATING.** | |
| Total for August, 1892 | 2,851,676 |
| Total for August, 1891 | 2,300,522 |
| Total for 8 months ending August 31st, 1892 | 22,292,733 |
| Total for 8 months ending August 31st, 1891 | 21,003,898 |
| **RESIDUUM.** | |
| Total for August, 1892 | 1,008 |
| Total for August, 1891 | 68,418 |
| Total for 8 months ending August 31st, 1892 | 236,334 |
| Total for 8 months ending August 31st, 1891 | 911,986 |

## CHEMISTRY IN THE DAIRY.

THE question of cheese-making has been before the Cheshire County Council on several occasions lately. For the benefit of those interested, as many of our readers are, we would direct attention to the experiments which have been made at the New York Agricultural Experimental Station in conjunction with the New York State Dairy Commission.

The details of these experiments are given in the Bulletin No. 43, published at the Geneva Station, N.Y., from which we cull the following summary :—

LOSS OF MILK-CONSTITUENTS IN CHEESE-MAKING.

*Fat.*—The amount of fat lost in the whey increased in some cases and decreased in others, when the amount of fat in the milk increased.

The average amount of fat lost in the whey in all the experiments was ·29 lbs. (about 4½ ounces) for one hundred pounds of milk, which was about 7·5 per cent. of the fat in the milk. In the factory experiments, the average loss of fat was about 9 per cent. of the fat in the milk ; while, in the station experiments, the average loss was about 7 per cent. of the fat in the milk.

*Casein and Albumen.*—The amount of caesin and albumen lost in the whey increased quite uniformly when the casein and albumen in the milk increased.

The average amount of casein and albumen lost in the whey in all the experiments was 0·74 lbs. (about 12 ounces) for one hundred pounds of milk, averaging 0·64 lbs. in the factory and 0 81 lbs. in the station experiments. From 23 5 to 24 per cent. of the casein and albumen in the milk was lost, the proportion of loss being quite uniform in all the experiments.

Of the 0·74 lbs. (or 12 ounces) of casein and albumen lost, 0·15 lbs (about 2½ ounces) consisted of casein and 0·59 lbs. (about 9½ ounces) of albumen. About 6 per cent. of the casein and 82 per cent. of the albumen in the milk was lost, on an average.

In the various lots of milk used, there were, on an average, 2·4 lbs. of casein and 0·72 lbs. of albumen, or, for every pound of albumen there were about 3·3 lbs. of casein.

INFLUENCE OF COMPOSITION OF MILK ON COMPOSITION OF CHEESE.

*Fat.*—The proportion of fat in the cheese increased, as a rule, when the amount of fat in the milk increased, but the increase of fat in the cheese was not uniform with the increase of fat in the milk. Green cheese, made from factory-milk that contained about three pounds of fat, in one hundred pounds of milk, contained about 33 lbs. of fat in one hundred pounds of cheese. Cheese made from whole milk to which cream had been added, and which contained six pounds of fat in one hundred pounds of milk, contained 42 lbs. of fat in one hundred pounds of cheese. Cheese made from milk containing about 3·35 lbs. of fat in one hundred pounds of milk contained about 35 lbs. of fat in one hundred pounds of cheese ; when the milk contained about 4 25 lbs. of fat in one hundred pounds of milk, the cheese contained from 36 to 36·5 lbs. of fat in one hundred pounds of cheese. In case of milk, partially skimmed, containing 3·56 lbs. of fat in one hundred pounds of milk, the cheese contained nearly 32 lbs. of fat in one hundred pounds of cheese.

Basing a comparison of results upon the water-free cheese, instead of green cheese, we obtain results that are quite similar in their relations.

In general, the fat exercised a greater influence upon the composition of the cheese than any other constituent of the milk.

*Casein and Albumen.*—In the cheese made from the normal milks, the amount of casein and albumen in one hundred pounds of cheese was a fairly uniform quantity, varying in the green cheese from 22 to 24 lbs. ; and, in the water-free cheese, varying from 36 to 38 lbs. The milks containing least fat made cheese containing a little more casein and albumen. Skimming the milk partially increased largely the amount of casein and albumen in the cheese ; while adding cream to whole milk diminished the amount of casein and albumen in the cheese.

*Relation of Fat to Casein and Albumen in Cheese as a Basis for determining the character of Milk.*—The results appear to indicate that in cheese, made from normal milk containing from 3 to 4·25 lbs of fat in one hundred pounds of milk, there should be about 1.4 lbs. to 1 5 of fat for one pound of casein and albumen in the water-free cheese. Partial skimming reduced this ratio to 1·22 lbs., while addition of cream raised it to over 2 lbs.

INFLUENCE OF COMPOSITION OF MILK ON YIELD OF CHEESE.

*Fat.*—Of the increased yield of cheese obtained in the various experiments, nearly one-half of the increase, on an average, was due to an increase of fat in the milk from which the cheese was made.

The amount of fat retained in the cheese made from one hundred pounds of milk increased when the amount of fat in the milk increased, but not with exact uniformity.

*Casein and Albumen.*—On an average, the increase of casein and albumen in the milk produced a little over one-fifth of the increased yield of cheese observed in the various experiments.

The amount of casein and albumen retained in the cheese made from one hundred pounds of milk increased quite uniformly when the amount of casein and albumen in the milk increased.

*Water.*—About one-third of the increased yield of cheese was due to an increased amount of water retained in the cheese.

The amount of water retained in the cheese made from one hundred pounds of milk was quite variable and increased when either the fat or casein and albumen in the milk increased.

YIELD OF CHEESE.

*Pounds of Cheese made from Milk.*—Of the factory-milk, there were required, on an average, 11·4 lbs. to make one pound of cheese.

Of the station-milk, 8·8 lbs. sufficed to make one pound of cheese.

The low yield of cheese from the factory-milk was mainly due to the small amount of fat, casein and albumen contained in it, that is, to the poor quality of the milk ; and, in addition, the loss in manufacture was a little greater. The poor quality of the milk was probably due to the fact that the cows were in the earlier stage of their period of lactation.

INFLUENCE OF VARIATION OF CONDITIONS OF MANUFACTURE.

*Variation in Amount of Rennet used.*—In two sets of comparisons, only one case showed any difference in loss of fat, casein and albumen, and this was when the amount of rennet used was much less than the usual amount. No difference of yield was shown that could be attributed to variation in the amount of rennet used.

*Cutting Curd in hard and soft Condition.*—In two sets of comparisons, one case of soft cutting gave a little larger loss of fat and casein. In one case the soft-cut curd gave a little larger yield, owing mainly to the retention of more moisture.

LOSS OF CHEESE IN WEIGHT DURING FIRST MONTH.

The loss of weight varied, for the first month, from 5·5 to 8 87 lbs., and averaged 6·95 lbs. for each hundred pounds of green cheese.

## NOTICES.

### LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of

THE CHEMICAL TRADE JOURNAL

From

MR. JOHN HEYWOOD,

2, Amen Corner,

Paternoster Row, E.C.,

On usual trade terms.

### FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed* MONEY ORDER is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country

### *ANSWERS TO CORRESPONDENTS.*

E. T. (Near Hereford).—Methylated spirit is, as far as we can learn, generally understood by the term. Of course methylated spirits consist chiefly of ethyl spirit, but the two are not identical.

R. S.—We think you will gain what you want by applying to the address we gave you.

V. AND S.—We are glad we were ultimately able to oblige you.

A. B.—(1) It is frequently used in the trade. (2) It is made by the Solvay process.

C. C. T.—We are much obliged for your letter.

W. M.—It has been sent.

T. J. (near Halifax)—There is an alternative method, but we have no personal experience of it. If we can put you in the way of any practical suggestion we will do so.

## Trade Notes.

MYRISTIC ACID.—It is stated that Mr. Lassar-Cohn, who is a member of the Berlin Chemical Society, has recently recognised the presence of myristic acid in ox-gall.

WHAT A POUND OF COAL WILL YIELD.—If a pound of coal is subjected to dry distillation and the products and residuals treated chemically by the processes for obtaining the well known coal-tar colours, the one pound so treated will yield enough magenta to colour 500 yards of flannel, vermilion for 2,560 yards, aurine for 120 yards, and alizarine sufficient for 155 yards of red cloth.

The American Paper Combine.—The Wall Paper Trust which is now known as the National Wall Paper Company has absorbed three more large paper works in the United States. There are now only two manufacturing firms of importance remaining outside the Trust, and it is confidently believed in Philadelphia trade circles, that these two firms will also shortly succumb to the wiles of the Trust. When this has been accomplished we suppose the squeezing process may be expected to begin.

Bad Smells in St. Helens.—The unpleasant smells which have recently proved a source of annoyance to the residents of St. Helens, were recently brought to the notice of the health committee, when a letter was read from the Secretary of the St. Helens Metal Recovery Company explaining that the peculiar odour arose from the admixture of some portion of what is known as superphosphate, an artificial manure. They are completing a washing apparatus, and then they do not think that there will be any further trouble, which will be pleasant news to many.

A Step in the Right Direction.—Although the proceedings of the London County Council in some matters have caused the Council to be dubbed with the soubriquet which pertains to "ladies of the tub," who dapple in soap suds, still the practical element is clearly *en évidence* when such an important matter as the quality of the coal supply is made the subject of enquiry. Some time ago the Council determined not only to give attention to the quantity but also to the quality of the coal supplied to consumers. Already one seller has been prosecuted under the Act of William IV., which imposes a penalty of £10. per ton. The difficulty of enforcing the provision lies in the fact that there are no recognised descriptions of many of the various kinds of coal. The coal expert employed by the Council described the coal as "roof" coal, and stated that there was not 5 per cent. of combustible matter in it.

The Action of Air on Oils.—Dr. Holde, Berlin, has subjected a number of vegetable and mineral oils to the action of air for several months, and he has afterwards determined:—(1) The viscosity, according to Engler, at 20° C.; (2) alterations of specific gravity; (3) changes in acidity; (4) the changes indicated by altered iodine numbers. He thus discovered:—(1) That the outflow—viscosity—had considerably changed in vegetable oils, but had not changed much in the case of mineral oils; (2) the specific gravity of vegetable oils had increased more in proportion than was the case with mineral oils; (3) notwithstanding the considerable amount of oxygen absorbed by vegetable oils, the increase of acidity had not been noticeable. Volatile organic acids are supposed to have been formed; (4) the iodine numbers had considerably decreased, which fact shows that under the influence of oxygen, the non-saturated compounds of oleic acid, etc., with glycerol have been transformed into saturated compounds.

Alkali Works and River Pollution.—On Wednesday last, at the Northwich County Court, the Northwich Rural Sanitary Authority took proceedings against the Cheshire Alkali Co., Ltd., for allowing large quantities of lime to enter the River Croco from their works at Middlewich. The reservoirs which were built to hold the waste lime have burst on several occasions, and within the last twelve months from 5,000 to 6,000 tons of lime had found their way into the Croco, polluting the same for eighteen miles of its course. It was suggested by counsel for the prosecution that the regularity of these outbursts seemed to indicate that the site on which the reservoirs were constructed had been chosen with a view to taking advantage of the proximity of the Croco in such emergencies, especially as the reservoirs were rather flimsy. Counsel for the defendants admitted there had been five such "outbursts" in twelve months; but, as the Company were preparing additional reservoirs, His Honour Judge Wynne Foulkes made an order, coming into force in two months time, to prohibit the entrance of solid or other matters into the river under a penalty of £20. for each offence after the two months.

Mason Science College, Birmingham.—A conversazione was held recently at the Mason Science College, Birmingham. The prizes won by the students were also distributed in the large lectrue theatre of the Midland Institute by Sir Murray Humphry F.R.S. The conversazione was held to commemorate the amalgamation of Queen's College with Mason's College. The first steps in this direction were taken ten years ago, when the Chemical Physiological and botanic branches of the Queen's College curriculum were transferred to the Mason College. The faculty of medicine has now likewise been transferred to the latter College. Commenting upon the methods of preparing students for examinations, Sir Murray Humphry drew attention to the defects which exist in the present system of examining, and he emphasised strongly the error into which many students fall by cramming too many subjects, whereby only a superficial knowledge of the various subjects is acquired. He also drew the attention of the *students* in particular to the fact that the cultivation of the faculty of attention was one *of the greatest of efforts of education.*

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

The tar products market seems driven again into a serious position. Benzol is flat, and 90's are certainly not worth more than 1s. 7d. to 1s. 7½., while 50/90's perhaps may be quoted 1s. 6½d. The large production of benzol from the carbonising works on the continent has seriously disturbed the English market. Pitch is about the only product maintaining its value. Anthracene is depressed. The advertisement of the Gas Light and Coke Company inviting tenders for 1,000 tons has certainly not improved the position. Considering the limited number of consumers the future of this article will to a great extent depend on the manner in which they will receive this departure from the ways hitherto adopted. All buyers like to choose their own time for acting, and do not like to be dictated to. Sometimes dictation has to be submitted to, even by powerful buyers, but in this case the dictation is in a form which will hardly turn out successful for the anthracene producers. Prices are nominally 9d. for 30% A and 6d. for 30% B.

The sulphate of ammonia market is very quiet, and business has become difficult owing to the manœuvres of the speculators, who are quoting both for spot and forward delivery below present prices. Much will depend upon this month's actual requirements, and it is meanwhile satisfactory to note that stocks do not increase, and the exports this year have already enormously exceeded those of any previous year. There are sellers at the various ports at £10. 2s. 6d., but generally a shade less, say 1s. 3d. a ton, has been accepted. Second hand parcels at Hull are said to have been done at £10. London prices remain nominally as last week.

## MISCELLANEOUS CHEMICAL MARKET.

There is little change to report during the week in the movement of any of the staple products of the alkali trade. Bleaching powder is still in fair request, and the price stands at £8. 7s. 6d. nett per ton, f.o.r. maker's works, for prompt or early delivery. For 1893 delivery prices are from £7. 5s. to £7. 10s. nett. For soda ash the demand is well maintained, and there is no alteration on spot quotations; for forward contracts 1¼d. per degree is nearest value. Caustic soda is unaltered for spot delivery, but slight further concessions are made on contracts for 1893 delivery; current prices are: F.o.b. Tyne, 77%, £11. 15s.; f.o.b. Liverpool, 74%, £11. 5s.; 70%, £10. 5s.; 60%, £9. 2s. 6d.; cream, 60%, £8. 17s. 6d. nett per ton, 10 ton lots and upwards. Recovered sulphur steady at £4. 10s. to £4. 15s. per ton on rails at maker's works. Vitriol and muriatic acid are without any material change in position. Chlorate of potash firm at 7½d. Chlorate of soda 8½d. per lb. Sulphate of copper without improvement, £14. 15s. to £15. being nearest spot value, f.o.b. Demand for all acetates is quiet, and there are no quotable changes. Carbolic acid crystals are lower at 5d. to 5½d. per lb. for 39/40°. Potash, caustic, and carbonate are firm in price, and meet with good general demand.

## THE METAL MARKETS.

LONDON, Wednesday.—Pig iron quiet. Scotch warrants closed at 41s. 9½d. cash. Middlesborough and Hematite quotations are purely nominal. Copper steady: Chili bars, G.O.B.'s and G.M.B.'s closed at £45. 10s. cash, and £46. to £46. 7s. 6d. three months. Tin steady: Straits closed at £94. 12s. 6d. to £95. 2s. 6d. cash, and £95. 2s. 6d. to £95. 12s. 6d. three months. Australian, £95. 2s. 6d. cash. English ingots, £97. 10s. Lead, firm: Spanish, £10. 10s. English, £10. 12s. 6d. to £10. 15s. Silesian spelter: Ordinary, £18. 17s. 6d. to £19. Quicksilver: First hands, £6. 7s. 6d., second hands, £6. 6s. *Copper shares* firm: Cape, 1½ to 1⅝; Copiapo, 2 to 2⅛; Libiola, 2⅞ to 3; Mason and Barry, $2\frac{3}{16}$ to $2\frac{1}{16}$; Rio Tinto, $15\frac{1}{16}$ to $15\frac{5}{16}$; Tharsis, $4\frac{9}{16}$ to $4\frac{11}{16}$; Namaqua, ⅝ to ¾; Panulcillo, ¼ to ⅜.

WOLVERHAMPTON, Wednesday.—At to-day's quarterly meeting a fair though not specially active tone prevailed. Marked bars were redeclared £8, the price fixed at the beginning of last year; merchant, £6. 10s. upwards; common bars, £5. 15s. to £6., a drop of 10s. on October last year. Sheets (singles) were £7; doubles, £7. 5s. to £7. 10s.; and lattens, £8. Northampton pigs, 45s. 6d.; Derbyshires, 46s. 6d. to 47s.; Lincolnshire, 48s. 6d.; Staffordshire all-mine, 62s. 6d. to 65s.

## REPORT ON MANURE MATERIAL.

ırket for phosphates continues to be much depressed, but in ıl material there has been more doing at somewhat higher

phosphate rock, 75 80%, offers at 8½d. per unit c.i.f. to hout finding buyers, but it is reported that considerable ıas been done for the Continent at prices which have not Nearest value of Peace River rock is 7d. per unit in .f. to U.K., and there are sellers of Bull River rock at 6½d. nportant doing in Continental descriptions for U.K. Bone cult to sell, and £3. 5s on 70% nett Hamburg terms is full ırgoes.

ontinues to be enquiry for cargoes of River Plate bones, but ɜnce of any offering there has been no business done for U.K. s have, however, been made for shipment to United States. ;rinding bones are also enquired for, and would readily fetch to £3. 17s. 6d. ex quay Liverpool. Crushed Kurrachee ɜr at £4. 2s. 6d. ex quay Liverpool, but do not find buyers. ɔone meal, fair average quality, has been sold in quantity at ıy Liverpool for October and November shipment, but on spot l. required for fair average quality, and £4. 15s. for Croft's lity. Nitrate of soda is firmer in all positions, the Conti- ɜrs being again in the field, and shipments September and the beginning of October being on a small scale. On spot ɔthing now of good quality to be had under 8s. 6d per cwt., ɜined more money is asked. Due cargoes, ordinary quality, ıre worth 8s. 4½d. per cwt., and for good test, handy size, uld likely have to be paid. Later shipments are very offered, at higher prices, and up to 9s. has been paid for nd November shipment.

lood is more enquired for, and 8s. 9d. to 9s. is now probably lue for high test delivered free rails at works.

## ERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

—Palm oil has been quiet most of the week, but to-day there ı better market. Prices are firm, and will probably continue e. Olive has been in fair demand at full prices, and remains ɜed continues to improve and may do so more. Liverpool ɜe been in good demand at 19s. 6d. to 20s. per cwt. in export ɔttonseed: Liverpool refined has realised our expectations ɜek, and is now quoted 18s. 9d., with a fair market and fair American is still at 20s. to 24s., though there is a slight ı to advance. Castor oil is rather uncertain; good seconds vary between 2 5/16d. to 2⅜d., while 2 9/16d. is still value for ıre French. Tallow is slow of sale, the demand being poor; wever, are firm and stocks low. Resin, common, is quoted . parcel of E and F types has been sold by auction during the realised 3s. 6d. to 3s. 7½d. per cwt. Spirits of turpentine in value considerably during the past week; being quoted ɜwt. on Monday, while to-day's price is 22s. 3d. to 22s. 6d., a ce of 9d. per cwt. The market is firm. Petroleum is steady nged.

JRS unaltered. Ochres: Oxfordshire, common, £10., £12., best, £15.; Derbyshire, common, 40s., medium, 50s., Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, ɜe, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, and oxide of zinc unchanged. Venetian red, £6. 10s. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: £6.; medium, £10.; finest, £20.

## 'HE LIVERPOOL MINERAL MARKET.

.rket rules firm. Manganese: Arrivals have increased a little, ll go into consumption, and prices are firm. Borate, 7d. per hate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; , £12. 10s., steady. Magnesite (raw lump): Quiet. Raw 5. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand), lemand; lump 20s., seconds 16s., and thirds 12s. French .rrivals small, whilst the demand is good, and prices firm. 'hite" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 5s.; and superfine, 105s. Barytes: Carbonate, best lump, ing; nuts, 70s. to 80s.; whilst finest white sulphate is in "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, nicestone quiet. Iron ore freely offered; prices easy; Bilbao, Irish, and Cumberland easier. Santander and manganiferous quiet. Emerystone: Best quality inquired for. No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal in good demand, and prices are firm. Chrome ore is in better demand, and prices are firm. Antimony ore steady at £12., and metal £43. to £44. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. 10s. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese steady, and prices are unchanged. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) steady; finest quality 22s. to 23s.

## TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are steady. For bleaching powder the price is now about £8. 5s. to £8. 10s. per ton. Caustic soda, 76/77%, £11. 10s. per ton. Rock sulphur in 2 cwt. bags, £4. 15s. to £4. 17s. 6d. per ton net.

Bleaching powder, softs, £8. 5s. to £8. 10s. per ton; hards, £8. 10s. to £8. 15s. per ton; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £4. 15s. to £4. 17s. 6d. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw. £3. per ton, 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per ton; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 7d. per lb. less 6%; pearl hardening, £3. 10s. per ton nett; pure white sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta crystals, £19. per ton; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s per ton; hydrate of barium, £11. per ton.

South Durham salt 9s. 6d. to 10s. per ton f.o.b. Tees.

Coals: There is very little alteration, a fuller demand for gas coal, and less for steam qualities. Steam coals, 9s. 6d. to 10. per ton, for best qualities; gas coals in good demand, 7s. 6d. to 8s. per ton; household coals quiet; bunker coals, a shade better demand; coke firm, 15s. 6d. to 16s. per ton.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

While leaving the quotation for sulphate of ammonia this week the same as last, viz., £10. to £10. 1s. 3d., it has to be noted that, if anything, there is an increased weakness of feeling, and sellers at £10. are more the rule. Very little business is being carried through.

In the general market quietness has been the rule, with a gradual easing off of excess values. Bleaching powder is now back upon £8., with the certainty of being lower presently. Of soda ash and refined alkali there is still none in the market. Chlorate of potash is a fraction down, also saltcake; the others are all stationary.

The position in the paraffin and mineral oil section has not improved. Another company (the Clippens Oil Co.) has succumbed, the creditors, meanwhile, deciding to continue the manufacture, making what they can of it, rather than sell off, which would simply be ruinous at the present juncture. Mineral oil plant at present might fetch break-up prices, but hardly much more. The call for burning oil (all ex contracts made earlier in the year) is pretty lively, the season being now fully on. There has been some buying of scale and wax, but no rush, consumers calculating on a further drop. Lubricating oils are still depressed and must continue so until general trade revives.

Chief prices current are:—Soda crystals, £2. 17s. 6d., nett Tyne; alum in lump, £5. 10s., nett Glasgow; soda ash, unobtainable; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; refined alkali, unobtainable; bleaching powder, £8. nett Tyne; saltcake, 35s.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow);

bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 7¼d., less 5% Liverpool; nitrate of soda, 8s. 3d. to 8s. 6d.; sulphate of ammonia, £10. to £10. 1s. 3d. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £14. 7s. 6d. less 5% Liverpool; paraffin scale (hard), 2½d., and soft 2½d. per lb.; paraffin wax, 120°, semi-refined, 3d.; paraffin spirit (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower); ditto (lubricating), 865°, £3. to £3. 10s., 885°, £4. 10s. to £6., and 890/895°, £5. to £7. Week's imports of raw sugar at Greenock were nil.

# New Companies.

**Standard Sewage and Water Purification Co., Ltd.**—Capital £4,000. in £1. shares. The object of this company is to carry on the business of chemical manufacturers and purifiers of sewage in all its branches. Registered without special articles of association.

**Templeton Dinas Silica Brick and Cement Co., Ltd.** Capital £5,000. in £50. shares. The object of this company is to purchase and work the brick and cement works situated at Templeton, in the county of Pembroke, and to manufacture and vend bricks, pipes, tiles, cement, and clay, etc.

**West Gloucestershire Brick and Tile Co., Ltd.**—Capital £2,000. in £5. shares This company is formed with a view to acquiring the brick and tile business now carried on at Soundwell in Gloucestershire, and to carry on the business in all its branches. Registered without special articles of association.

# The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

## APPLICATIONS FOR LETTERS PATENT.

**Manufacture of Chloro-Para-Oxybenzoic Acids.** B. Willcox. 17,147. Sept. 26th.
**Refrigerators.** C. F. Miller. 17,159. Sept. 26th.
**Electrolytical Decomposition of Metallic Salts.** C. Kellner. 17,169. Sept. 26th.
**Recovering Sulphur from Sulphurous Acid and obtaining Bi-Sulphide of Carbon.** H. C. Bull. 17,216. Sept. 27th.
**Double Salts Containing Flourine and a Constant amount of Antimony.** W. P. Thompson 17,228. Sept. 27th.
**Obtaining Neutral Wool Grease From Suint or Wool Washings.** J. C. Lahusen. 17,230. Sept 27th.
**Absorbing Smoke, etc, from Locomotives.** E. E. Dulier. 17,235. Sept. 27th.
**Production of Cyanides.** A. V. Newton. 17,240. Sept. 27th.
**Production of Nitrogen Compounds.** A. V. Newton. 17,241. Sept. 27th.
**Improvements in the Manufacture of Gas.** R. M. Bidelman. 17,2 27th.
**Ascertaining the Pressure in Compressed Gas Cylinders an Reservoirs.** D. W. Noakes. 17,301. Sept. 28th.
**Withdrawal of Sludge from Sewage Tanks, etc.,** A. P. I. Cotterell Sept. 28th.
**Improvements in Batteries.** R. J. Crowley. 17,348. Sept. 28th.
**Rag or Fibre Pulling Machines.** A. Howe. 17,366. Sept 29th.
**Manufacture of Illuminating Gas.** H. E. Newton. 17,394. Sept. 2
**Coke Furnaces.** F. J. Collin. 17,419. Sept. 29th.
**Oxyhydrogen Lanterns.** F. Enock. 17,424. Sept. 30th.
**Furnaces for Calcining Complex Ores.** W. W. Fyfe. 17,452. Sept
**Smoke Consuming Appliances.** E. Harrison, H. W. Turner, a Craven. 17,477. Sept. 30th.
**Improved Disinfecting Soap.** J. C. Fell. 17,478. Sept. 30th.
**Obtaining Tar, Oil, Paraffin, Asphalte, Pitch Heating and Illum Gases, and Large Coke from Organic Fibres.** P. Jensen. Sept. 30th.
**Improvements in Furnaces for the Manufacture of Fig or Cast** H. Darby. 17,521. Oct. 1st.
**Substitution Composition for Wooden Match Sticks, etc.,** G. Ger 17,525. Oct. 1st.
**Manufacture of Colouring Matters.** H. H. Lake. 17,546. Oct. 1st.

# Gazette Notices.

## PARTNERSHIPS DISSOLVED.

J. Beswick, T. Beswick, M. E. Beswick, E. A. Beswick, an Beswick, under the style of T. Beswick and Sons, Wormhill, Derby Froghall and Quarnford, Staffordshire, lime merchants, lime burner proprietors and farmers, as far as regards the last three.

J. Dutton and E. L. Cockrell, under the style of C. A. Remington and since March 31 under the style of the Zolene Co., Manchest grease manufacturers and merchants.

J. Hallawell and C. Symes, under the style of J. Hallawell and Co. and Co., Liverpool, wholesale and retail and export pharmaceutical ch

W. F. Hiscock and J. H. Hiscock, under the style of Hiscock Broth Embankment, King's-road, Chelsea, and Dorset-road, Clapham, w paint, varnish, and grease manufacturers, oil merchants, and importer

W. J. Messenger and H. Howard, under the style of H. Howard Lucretia-street and Harriet-street, Lower Marsh, Lambeth, glass manu

J. E. Davies, H. Davies, and W. L. Davies, under the style of Davies Cardiff, tallow melters, soap and candle manufacturers.

## BANKRUPTCY ACTS, 1883 and 1890.

### Receiving Orders.

Hill, Henry Mark, Heathtown, near Wolverhampton, brick manufact

Jessup, Robert Markham, Swinefleet, near Goole, out of business, la and druggist.

Griffiths, Thomas, Bowyer House, Clapham, paint manufacturer, and director of Griffiths' Pyrodene Fire Proofing Co., Limited, of Dashwo New Broad-street, London, E.C.

Jolly, Mathew, Ainsdale, Lancashire and Liverpool, and Gaskell John, Old Swan, Lancashire and Liverpool (until recently tradi partnership together as Jolly and Gaskell), oil merchants.

Saunders, Thomas Bealby, late of Liversedge, and Saunders, Ashw late of Bradford (trading as Saunders and Saunders), Cleckheaton, manufacturers.

### Adjudications.

Ashworth, Ann, and Outram, Elizabeth, Greetland, near Halifax members of the firm of Benjamin Outram and Co., dyers and finisher

Jessup, Robert Markham, Swinefleet, near Goole, out of business, la and druggist.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending October 1st.*

**Acetanilide—**
Holland, 10 pkgs. F. Boehm

**Acetic Acid—**
Holland, 50 pkgs. Beresford & Co.
" 50 J. Owen
" 111 A. & M. Zimmermann

**Acetone—**
Holland, 22 pkgs. A. & M. Zimmermann

**Alkali—**
France, 100 c. Hernu, Peron, & Co.
" 100 Arnati & Harrison

**Alum—**
Holland 28 pkgs. Ohlenschlager & Co.

**Alumina Sulphate—**
Germany, 100 pkgs. Tough & Henderson

**Ammonium Chloride—**
Holland, 2 pkgs. G. Meyer & Co.

**Antimony—**
Pt. Jackson, 30 t. H. Bath & Son
France, 40 J. Bamber
N. S. W., 20 T. Merry & Son
Sydney, 11 L. & I. D. Jt. Co.
" 10 W. B. Marcus
Brisbane, 34 Major & Field
Italy, 70 Novelli & Co.

**Asbestos—**
Adelaide, £24 E. Davis & Co.
U. States, 63 Witty & Wyatt
N. Russia, 36 M. D. Co.
France, 15 Mory & Co.

**Barytes—**
Belgium, 10 cks. J. L. Lyon & Co.
" 44 A. Zumbeck & Co.
Holland, 115 Magee, Taylor, & Co.
Germany, 20 G. Steinhoff

**Bromine—**
Germany, 44 pkgs. A. & M. Zimmermann

**Caoutchouc—**
Zanzibar, 53 c. L. & I. D. Jt. Co.
" 61 Clarke & Smith
France, 222 Wallace Bros.
Madagascar, 85 Procter Bros
E. Indies, 34 L. & I. D. Jt. Co.
Mauritius, 11 "
France, 56 Wallace Bros.
E. Indies, 16 J. Swire & Sons
" 23 T. Merry & Son
France, 24 Anderson, Weber & Smith
Madagascar, 25 A. Che
" 200 Hamm
" 16 Prop
Natal, 7
France, 4 Flage
U. States, 3 St
Brazil, 10 Kleinwort, S

**Carbonic Acid Gas—**
Holland, 125 pkgs. Phillipp

**Castor Oil—**
Belgium, 50 brls. F
France, 25 cks. H. John
" 30 brls. L
E. Indies, 124 cs. Anders
" 700 Montgomer
Italy, 5 H. Job
" 10 Bere

**Caustic Potash—**
France, 30 c. J. A. Reid
Canada, 30 pkgs. J. Barber & Co.
France, 85 Weatherley, Mead, & Co.

**Chemicals** (*otherwise undescribed*)
Germany, 32 pkgs. T. H. Lee
" 93 A. & M. Zimmermann
" 7 Pillman & Phillips
" 10 W. Burton & Sons
Holland, 2 T. H. Lee

**Cream of Tartar—**
Spain, 6 pkgs. B. & F. Wf. Co., Ltd.
Holland, 12 "
Spain, 5 R. Morrison & Co.
Holland, 37 Middleton & Co.
France, 5 J. Puddy & Co.
" 11 Smith, Abbott, & Co.
" 4 B. & F. Wf. Co., Ltd.
" 3 G. Ward & Sons

**Dyestuffs—**

**Argols**
Cape Town, 6 pkgs. Brown & Elmslie

**Cochineal**
Canaries, 5 pkgs. W. M. Smith & Sons
" 10 Sperling & Williams
" 5 Swanston & Co.
" 8 Kuhner & Co.

**Divi Divi**
Ceylon, 34 pkgs. Colombo Coml. Co.
" 34 L. & I. D. Jt. Co.

**Extracts**
Denmark, 5 pkgs. Sorensen & Co.
" 20 Tegner, Price, & Co.
France, 350 L. J. Levinstein & Sons
Belgium, 20 T. H. Lee
Denmark, 5 A. F. White & Co.
Holland, 1 J. Sinclair & Son

**Fustic**
Jamaica, 2 t. L. & I. D. Jt. Co.

**Gambier**
Singapore, 99 pkgs. S. Barrow & Bro., Ltd.
Germany, 324 W. H. Cole & Co.
Singapore, 95 T. J. & T. Powell

**Indigo**
Holland, 3 chts. T. H. Lee
Germany, 1 pkg. L. & I. D. Jt. Co.
E. Indies, 31 chts. "
Germany, 30 H. Grey, jun.
E. Indies, 2 Parsons & Keith

**Myrabolams**
E. Indies, 2,000 pkgs. A. B. Curtis & Co.
" 14 J. Forsey

**Orchella**
Madagascar, 8 pkgs. Procter Bros.
E. Indies, 3 L. & I. D. Jt. Co.
Ceylon, 3 "

**Saffron**
Spain, 1 pkg. B. & N. Wf. Co., Ltd.
" 1 Pickford & Co.

**Sumac**
Italy, 300 pkgs. W. France & Co.
" 800 Beresford & Co.
" 1,017 J. Kitchin, Ld.

**Tanners' Bark**
Belgium, 12 t. Bevington & Son
Adelaide, 220 Soundy & Son
Belgium, 48 Leach & Co.
Natal, 33 A. & W. Nesbitt
" 5 Staley, Radford, & Co.
" 6 Brookes & Green

**Valonia**
A. Turkey, 27 t. Boutcher, Mortimore & Co.

**Farina—**
Holland, 25 pkgs. J. Barber & Co.
Brazil, 1,164 C. F. Webster & Co.
Holland, 200 R. G. Hall & Co.

**French Chalk—**
Italy, £50 W. Harrison & Co.

**Gambogo—**
Singapore, 40 cs. L. & I. D. Jt. Co.

**Glucose—**
U. S., 4,750 pkgs. 4,750 c. J. Barber & Co.
" 300 300 c. Barrett, Tagant, & Co.
France, 140 140 "
Holland, 6 36 J. Barber & Co.
" 6 48 J. Knill & Co.
Germany, 50 50 Trier, Meyer, & Co.
Holland, 50 50 Prop. Sun Wf.
U. States, 70 560 F. J. Warren
" 965 2,030 Union L. Co., Ltd.
" 250 250 Perkins & Homer
" 140 769 T. M. Duche & Sons
" 75 440 C. Southwell & Co.
" 165 908 Prop. Chambln.'s Wf.

**Guano—**
Peru, 28 t. Anglo Contl. G. Wks.

**Lead Acetate—**
Germany, 6 pkgs. Petri Bros.

**Manure—**
Germany, 57 t. Humphrey & Co.

**Methyl Alcohol—**
Holland, 8 dms. Lister & Biggs

**Mica—**
Germany, £50 L. & I. D. Jt. Co.
Ceylon, 45 W. M. Smith & Sons

**Ochre—**
Germany, 5 brls. C. S. Lovell
Holland, 6 cs. Phillipps & Graves

**Painters' Colours—**
Germany, 46 pkgs. L. & I. D. Jt. Co.
France, 1 Hernu, Peron & Co.
U. States, 7 Pinchin, Johnson, & Co.
Germany, 38 1 ck. T. H. Lee
" 8 3 cs. Phillipps & Graves
" 10 Spies Bros. & Co.
" 13 W. B. Dick & Co.
Holland, 2 G. Rahn & Co.
Germany, 12 Beresford & Co.
Holland, 14 Phillipps & Graves
" 4 Hernu, Peron, & Co.
Belgium, 17 T. Palmer
France, 4 Messageries Parisiennes
Germany, 20 cks. G. Steinhoff
" 5 H. Lambert
" 18 Upas Antifouling
France, 28 Flageollet & Co.
Belgium, 18 Arnati & Harrison

**Paraffin Wax—**
U. States, 131 brls. Prod. Brokers Co.
Germany, 87 cs. Grosscurth & Luboldt
U. States, 1,200 J. H. Usmar & Co.

**Phosphate Rock—**
Holland, 200 t. Little & Johnston
Belgium, 170 A. Hunter & Co.
Holland, 50 Lawes Chemical Co.
U. States, 2,351 Wyllie & Gordon

**Pitch—**
N. Russia, 500 cks. Linck, Moeller, & Co.

**Plumbago—**
Ceylon, 25 cs. Vollsart Bros.
Germany, 95 cks. B. Gallaway
Holland, 29 "
Ceylon, 102 brls. J. Cooper
" 290 J. Thredder, Son, & Co.
Germany, 5 cks. T. H. Lee

**Potash—**
France, 228 c. Petri Bros.

**Potassium Bicarbonate—**
Holland, 29 pkgs. A. & M. Zimmermann

**Potassium Carbonate—**
France, 30 c. J. A. Reid
Germany, 9 cks. Beresford & Co.
France, 11 "

**Potassium Permanganate—**
Holland, 30 pkgs. F. Boehm

**Potassium Sulphate—**
Germany, 406 pkgs. D. de Pass & Co.
" 254 Bessler, Waechter, & Co.
" 508 A. Hunter & Co.
" 22 Pillow, Jones, & Co.

**Pyrites—**
Spain, 956 t. Soc. Com. d'Affretemento

**Rosin—**
Germany, 4 pkgs. L. & I. D. Jt. Co.
France, 3 brls. J. Watt & Son
" 50 Pillow, Jones, & Co.
U. States, 1,200 F. S. Chieseman & Co.

**Saltpetre—**
Germany, 118 cks. 80 kgs. P. Hecker & Co
" 50 Domeier & Co.
" 70 T. Merry & Son
E. Indies, 2,506 bgs. Ralli Bros.

**Sodium Hyposulphite—**
Holland, 28 pkgs. Beresford & Co.

**Stearine—**
France, 71 bgs. Beresford & Co.

**Sulphate—**
France, 29 pkgs. Weatherley & Co.

**Sulphur—**
Italy, 50 t. E. & E. Arbib
" 5 G. Boor & Co.

**Talc—**
Italy, £190 Davies, Turner, & Co.

**Tallow—**
Melbourne, 226 cks. A. B. Curtis & Co.
" 182 Ross & Deering
" 271 J. Owen
" 165 Beresford & Co.
" 28 S. J. Clark
" 70 Pillow, Jones, & Co.
N. Zealand, 16 Low, Sons, & Bedford
" 6 Leach & Co.
" 7 A. Tremeame & Co.
Sydney, 54 Aust. Meat Co.
Queensland, 270 "
" 16 Dyster, Nalder, & Co.
" 111 Brown & Elmslie
Melbourne, 2 J. Morrison & Co.
" 357 Cuthbert & Hall
" 32 Goldsbrough, Mort, & Co.
" 194 Dalgety & Co.
Queensland, 80 Phillipps & Graves
" 408 Goldsbrough, Mort, & Co.

**Tallow and Stearine—**
U. States, 10 cks. Allan Bros. & Co.

**Tartaric Acid—**
France, 20 pkgs. W. C. Bacon & Co.
Holland, 27 B. & F. Wf. Co., Ltd.
" 21 Middleton & Co.

**Tin Oxide—**
Germany, 3 pkgs. H. Lambert

**Turpentine—**
N. Russia, 53 brls. C. Chiesman & Co.

**Ultramarine—**
Germany, 2 pkgs. H. Brooks & Co.
" 3 cks. G. Steinhoff
Holland, 20 5 cs. Hernu, Peron, & Co.
Belgium, 5 brls. Leach & Co.
" 3 W. Harrison & Co.

**Varnish—**
U. States, 1 pkg. Rosenberg, Loewe, & Co.
" 17 Pinchin, Johnson, & Co.
Holland, 5 Brougham Young

**Vermilion—**
Germany, 6 cs. Haeffner, Hilpert, & Co.

**White Lead—**
Holland, 113 cks. Phillipps & Graves
Germany, 7 O'Hara & Hoare
Belgium, 8 J. L. Lyon & Co.
" 8 Burrell & Co.
" 10 Leach & Co.
Holland, 6 Colthurst & Harding
Germany, 23 Randall Bros.
" 39 Magee, Taylor, & Co.
" 12 Petri Bros.
" 18 S. H. Willoughby
Holland, 21 Burrell & Co.
" 4 A. & M. Zimmermann
" 12 E. Leverkus & Co.

**Zinc Oxide—**
Holland, 150 brls. M. Ashby, Ld.
" 50 cks. Burrell & Co.
U. States, 100 M. Ashby, Ld.
Holland, 625 Soundy & Sons

**Zinc White—**
Germany, 10 cks. Spies Bros. & Co.

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## LIVERPOOL.

*Week ending September 29th.*

**Acetate of Lime—**
New York, 1,618 bgs.

**Acetic Acid—**
Rotterdam, 33 balns.

**Alumina Sulphate—**
Rotterdam, 12 cks.

**Barytes—**
Rotterdam, 59 cks.
Bremerhaven, 22

**Borate—**
Hamburg, 208 bgs.

**Borate of Lime—**
Antofagasta, 2,818 sks. Cockbain Allardice & Co.
" 698 bgs. Brownells & Co.
" 700

**Caoutchouc—**
Hamburg, 1 cs. 12 cks.

**Castor Oil—**
Calcutta, 300 cs. Ralli Bros.

**Chemicals** (*otherwise undescribed*)
Rotterdam, 2 cks.

**Chromium Acetate—**
Rotterdam, 10 brls.

**Colours—**
Rotterdam, 7 cs. 4 brls. 3 cks
Hamburg, 2
Antwerp, 10 J. T. Fletcher & Co.

**Cream of Tartar—**
Bordeaux, 1 ck.
Tarragona, 5 cks.

**Dyestuffs—**

**Annatto**
Bordeaux, 4 cks.

**Argols**
Patras, 24 cs. M. D. Frangopulo & Co.
Bordeaux, 33 cks.
Oporto, 106 German Bank of London
" 36 German Bank
" 40 bgs.

**Extracts**
Bordeaux, 350 cks.
Antwerp, 20 brls.
New York, 112 bxs.

**Fustic**
Trieste, qty. Kinckler & Co.
Corinto, 303 t. D. Midgley & Son

**Gambier**
Singapore, 1,385 bgs.

**Indigo**
Kurrachee, 25 chts.
Bombay, 22 cs. 37 Forbes, Forbes & Co.
" 36

**Myrabolams**
Bombay, 1,240 bgs. D. Sassoon & Co.
" 359

**Orchella**
Lisbon, 77 pkgs. Edwards Bros.
" 12 bls.

**Saffron**
Valencia, 2 cs.

**Sumac**
Barcelona, 50 bgs. A. Ruffer & Sons

**Valonia**
Smyrna, qty. Essayan, Shaburn & Co.
" 173 bgs. W. Schroeder & Co.
" qty. Barry Bros.
" 186

**Farina—**
Rotterdam, 50 bgs.
**Iodine—**
Iquique, 40 brls. A. Gibbs & Sons
**Limestone—**
Antwerp, 13 blks. 4 crts.
**Manganese—**
Carrizal, 1,000 t.
Shanghai, 2,605 bgs.
Hamburg, 2 cks.
**Mineral White—**
Trieste, 105 bgs. Cunard S.S. Co.
New York, 50
**Paint—**
Boston, 10 cs. H Lovett
Constantinople, 60 kgs. Goodlass, Wall & Co.
**Paraffin Wax—**
St. John's, Nfld., 12 cks. C. T. Bowring & Co.
**Phosphate—**
Antwerp, 170 t.
**Pitch—**
Bordeaux, 24 cks.
**Pyrites—**
Antwerp, 1,430 t. Matheson & Co.
Huelva, 4,940 ,,
**Rosin—**
Savannah, 6,160 brls.
Baltimore, 1,700
Norfolk, 13
**Soap—**
Bordeaux, 1 cs.
Las Palmas, 45 bxs.
Hamburg, 1 cs.
New York, 63 bxs. E. Thompson
**Soda—**
Rotterdam, 3 cks.
**Sodium Nitrate—**
Iquique, 18,800 bgs. F. Huth & Co
**Stearine—**
Rotterdam, 3 cks.
Antwerp, 13 bgs.
**Tallow—**
New York, 150 tcs.
Philadelphia, 206 T. M. Marc & Co.
,, 20 hhds.
Boston, 50
**Tartar—**
Bordeaux, 2 cks.
**Tartaric Acid—**
Rotterdam. 17 cks.
**Tin Perchloride—**
Antwerp, 3 cks. J. T. Fletcher & Co.
**Turpentine—**
Savannah, 3,088 brls.
**Ultramarine—**
Bremerhaven, 16 cks.
Rotterdam, 9 cs.
**Varnish—**
Antwerp, 3 cks.
**Waste Salt—**
Hamburg, 320 t. 1,626 bgs.
**Wood Spirit—**
Hamburg, 5 dms.
**White Lead—**
Rotterdam, 24 cks.
Antwerp, 8
**Zinc Oxide—**
Philadelphia, 5 bxs. W. J. Rodatz & Co.
Rotterdam, 50 cks.
Antwerp, 61 brls.

## HULL.

*Week ending October 1st.*

**Acid—**
Hamburg, 1 ck. Wilson, Sons & Co., Ld.
**Alum—**
Rotterdam, 5 cks. W. & C. L. Ringrose
**Asbestos—**
Reval, 598 bgs.
**Barytes—**
Rotterdam, 25 cks. Hutchinson & Son
Bremen, 44 H. F. Pudsey
**Caoutchouc—**
Hamburg, 6 bls. C. M. Lofthouse & Co.
**Castor Oil—**
Genoa, 56 cs. Wilson, Sons & Co., Ld.
**Chemicals** *(otherwise undescribed)*
Dunkirk, 17 pks. Wilson, Sons & Co., Ld.
Rotterdam, 8 cks. W. & C. L. Ringrose
Danzig, 18
Bremen, 3 cs. Wilson, Sons & Co., Ld.
Stettin, 36 cks. ,,
,, 15
Antwerp, 54 pks.
**Colours—**
Dunkirk, 6 cs. Wilson, Sons & Co., Ld.
Rotterdam, 43 pks. W. & C. L. Ringrose
,, 7 cks. 1 cs. Hutchinson & Son
Stettin, 40 Wilson, Sons & Co., Ld.
Bremen, 1 cs. 8 Veltmann & Co.
,, 2 Johnson Brs.
Hamburg, 2 brls. Cammell, Haigh & Co.
Flushing, 4 cs. 293 pks. 11 cks. Zeeland S. S. Co.
Rotterdam, 1 brl. 23 10 G. Lawson & Sons
,, 20 cks. Blundell, Spence & Co.
Antwerp, 96
Ghent, 10
**Cream of Tartar—**
Rotterdam, 2 cks. W. & C. L. Ringrose
**Cryolite—**
Copenhagen, 3 cks. Wilson, Sons & Co., Ld.
**Dextrine—**
Rotterdam, 3 bls. G. Lawson & Sons
**Dyestuffs—**
**Alizarine**
Rotterdam, 8 brls. G. Lawson & Sons
,, 50 cks. W. & C. L. Ringrose
**Indigo**
Amsterdam, 6 cks. W. & C. L. Ringrose
**Madder**
Amsterdam, 1 ck. W. & C. L. Ringrose
Rotterdam, 2 cks. G. Lawson & Sons
**Myrabolams**
Bombay, 3,868 pkgs.
**Farina—**
Stettin, 5 pks. 123 bgs. Wilson, Sons & Co., Ld.
Ghent, 320 cs. 216 bxs. ,,
**Glucose—**
Dunkirk, 100 bgs.
Stettin, 10 cks.
New York, 150 brls.
**Kaolin—**
Rotterdam, 72 cks. Reckitt & Sons
**Lead Acetate—**
Rotterdam, 40 cks. Wilson, Sons & Co., Ld.
**Naphthol—**
Rotterdam, 4 cks. Hutchinson & Son
**Nitrate of Lead—**
Rotterdam, 4 cks. Hutchinson & Son
**Ochre—**
Leghorn, 109 cks.
Marseilles, 150 Wilson, Sons & Co., Ld.
,, 44
Rouen, 65 Rawson & Robinson
Stettin, 16 Wilson, Sons & Co., Ld.
**Paint—**
New York, 25 cs. Wilson, Sons & Co., Ld.
**Pitch—**
Ghent, 60 brls. Wilson, Sons & Co., Ld.
Stettin, 26 cks.
Hamburg, 55
**Potash—**
Rotterdam, 60 cks. G. Lawson & Sons
**Quicksilver—**
Hamburg, 5 bottls. Wilson, Sons & Co., Ld.
**Salt—**
Hamburg, 20 t. G. Hardy & Co.
**Saltpetre—**
Hamburg, 10 kgs. Wilson, Sons & Co., Ld.
,, 20
**Soap—**
Marseilles, 4 cs. Wilson, Sons & Co., Ltd.
Rotterdam, 6 cs. G. Lawson & Sons
**Soda—**
Rotterdam, 18 cks. G. Lawson & Sons
**Sodium Nitrate—**
Rotterdam, 16 cks. G. Lawson & Sons
**Stearine—**
Antwerp, 30 bgs. Wilson, Sons & Co., Ld.
**Tar—**
Nykarleby, 210½ brls. J. Good & Sons
St. Petersburg, 1 ck. Wilson, Sons & Co., Ld.
**Tartar—**
Naples, 5 cks.
**Tin Oxide—**
Rotterdam, 6 cs. G. Lawson & Sons
**Turpentine—**
Hamburg, 1 cs. Wilson, Sons & Co., Ld.
Savannah, 2,514 brls.
Libau, 52
**Ultramarine—**
Rotterdam, 34 cks. Hutchinson & Son
**Vermilion—**
Bremen, 3 cs. J. Pyefinch & Co.
**Waste Salt—**
Hamburg, 250 t. G. Lawson & Sons
**White Lead—**
Rotterdam, 12 cks. Gibson Brs.
Antwerp, 24 cks. Bailey & Leetham

## GLASGOW.

*Week ending October 6th.*

**Alkali—**
Antwerp, 2 cks.
**Alum—**
Hamburg, 104 cks
**Aniline Salt—**
Rotterdam, 46 cks. G. & J. Boyd
**Barytes—**
Rotterdam, 69 cks.
Hamburg, 20 brls.
**Barytes Sulphate—**
Antwerp, 106 bgs.
**Colours—**
Rotterdam, 1 bx. 4 cks. 9 cs. J. Rankine & Son
Hamburg, 1
**Cream of Tartar—**
Rotterdam, 3 cs. J. Rankine & Son
**Dyestuffs—**
**Alizarine**
Rotterdam, 153 cks.
**Aniline Colours**
Rotterdam, 1 ck. J. Rankine & Son
**Annatto**
Bordeaux, 3 cks.
**Extracts**
Antwerp, 12 cks.
**Indigo**
Rotterdam, 28 chts. J. Rankine & Son
**Tannin**
Hamburg, 4 css.
**Guano—**
Drontheim, 542 bgs.
Christiania, 1,096
**Manganese—**
Rotterdam, 5 cks. J. Rankine & Son
**Ochre—**
Rouen, 15 cks.
**Paint—**
Boston, 15 css.
**Painters' Colours—**
Antwerp, 5 cs. 5 cks.
**Potash—**
Rouen, 2 cks.
Hamburg, 31
**Rosin—**
Baltimore, 750 brls. W.M. Gemmell & Co.
**Stearine—**
Hamburg, 80 bgs.
**Tallow—**
Philadelphia, 50 hhds.
**Tar—**
Archangel, 2,528 brls. Gourlock
**Tartar—**
Oporto, 6 cks.
Bordeaux, 9
**Tartar Emetic—**
Hamburg, 8 cks.
**Waste Salt—**
Hamburg, 136 cks. 500 bgs.
**White Lead—**
Rotterdam, 29 cks. J. Ra
,, 63
**Zinc Oxide—**
Rotterdam, 25 cks. J. Ra
**Zinc White—**
Rotterdam, 100 cks. J. Ra

## TYNE.

*Week ending October 1st.*

**Alum Earth—**
Hamburg, 17 cks. Tyne S. S.
**Barytes—**
Antwerp, 104 cks. 6 bgs. T S. S.
**Colours—**
Antwerp, 2 cks. Tyne S. S.
Hamburg, 2 ,,
**Glucose—**
New York, 150 brls. Furn Withy &
**Limestone—**
Antwerp, 3 cs. Tyne S. S.
**Phosphate—**
Antwerp, 260 t. West & Re
**Plumbago—**
Antwerp, 5 bgs. Tyne S. S.
**Potash—**
Hamburg, 8 cks. Tyne S. S.
**Salt—**
Hamburg, 127 t. Burrell &
**Saltpetre—**
Hamburg, 4 cks. Tyne S. S.
**Stearine—**
New York, 35 brls. Furn Withy &
**Sulphur—**
Pomaron, 1,200 t. Mason & Ro
**Tallow—**
New York, 50 hhds. Furn Withy &
**Zinc Oxide—**
Antwerp, 2 cks. Tyne S. S.

## GOOLE.

*Week ending September 21st.*

**Caoutchouc—**
Boulogne, 6 cks.
**Dyestuffs** *(otherwise undescribed)*
Boulogne, 8 cs. 11 cks. & pk
**Phosphate—**
Ghent, 816 bgs.
**Potash—**
Calais, 19 cks.
Dunkirk, 33 54 dms.
**Pyrites—**
Seville, 1,300 t.
**Tanning Extract—**
Ghent, 25 cks.
**Tar—**
Ghent, 25 cks.
**Waste Salt—**
Hamburg, 140 t.

## GRIMSBY.

*Week ending September 24th*

**Caoutchouc—**
Antwerp, 1 cs.
**Chemicals** *(otherwise undescribed)*
Rotterdam, 1 pkge.
Antwerp, 2 cks.
Hamburg, 3 pkgs.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending October 5th.*

**Acids—**
Hong Kong, 11 cs. £26
Malta, 2 14

**Alum—**
Samarang, 12 t. £71

**Alum Cake—**
Calcutta, 35 t. 9 c. £124

**Aluminous Cake—**
Calcutta, 36 t. 17 c. £120

**Ammonia—**
Antigua, 3 cs. £25

**Ammonium Carbonate—**
St. Petersburg, 6 c. £10
Bombay, 8 13
Adelaide, 10 22
Dunkirk, 18 24
B. Ayres, 1 t. 35

**Ammonium Chloride—**
Gothenburg, 1 t. 2 c. £35

**Ammonium Sulphate—**
Demerara, 49 t. 19 c. £537
Dusseldorf, 100 17 1,084
Treport, 25 250
Dunkirk, 20 6 210
Trinidad, 3 3 30
Hamburg, 301 18 3,254
Rotterdam, 41 410

**Bisulphide of Carbon—**
Wellington, 2 t. £42

**Borax—**
Hamburg, 8 cks. £63
St. John's, N.B., 10 c. 15

**Boric Acid—**
Lisbon, 25 pkgs. £25

**Bromine—**
Havre, 51 cs. £255

**Carbolic Acid—**
Hamburg, 127 cks. £802
Treport, 55 cs. 54
Boston, 3 t. 10 c. 130
Genoa, 12 cks. 23
Baltimore, 32 drs. 205
Ghent, 10 pkgs. 40
Cape Town, 13 16 c. 130
Riga, 24 cks. 100

**Caustic Soda—**
Cape Town, 16 c. £23
Algoa Bay, 4 t. 7 120
Hobart, 2 5 40
Dunedin, 10 101
E. London, 9 15
Philadelphia, 75 834
Hong Kong, 11 20

**Chemicals** (*otherwise undescribed*)
E. London, 2 kgs. 6 cs. £24
Algoa Bay, 6 8 pkgs. 50
Sydney, 2 c. 13
Natal, 28 cs. 37
Cape Town, 3 28 113
Melbourne, 40 72
Wellington, 2 8 26

**Chloride of Lime—**
Auckland, 10 c. £11
Wellington, 1 t. 23

**Citric Acid—**
Melbourne, 10 c. £75
St. Petersburg, 10 80
Hamburg, 10 82
Amsterdam, 5 40
Danzig, 1 t. 166
Shanghai, 1 8
Sydney, 10 75
Bombay, 6 48
Rotterdam, 2 16
Constantinople, 6 50
Penang, 2 cs. 22

**Coal Products—**
**Aniline**
Melbourne, 1 cs. £20
Calcutta, 2 100
Shanghai, 10 106
**Benzol**
Calais, 10 cks. 8 drs. £221
**Creosote**
Stettin, 10 cks. £4
Bordeaux, 50 275
**Naphtha**
Calais, 13 cks. £27
Wellington, 30 drs. 22
Auckland, 10 10
**Naphthalene**
Hamburg, 6 cks. £50
**Pitch**
New York, 1,000 cks. £523
Antwerp, 1,337 t. 1,921
Abo, 70 90
Salonica, 25 brls. 9
**Tar**
Abo, 1,000 brls. £408
Stettin, 100 cks. 41
**Toluol**
Calais, 25 cks. £62

**Coal Products** (*otherwise undesc'd.*)
Singapore, 30 drs. £22

**Copperas—**
Sydney, 5 t. 12 c. £12
Bussorah, 90 brls. 41

**Copper Sulphate—**
Wellington, 10 c. £8

**Cream of Tartar—**
Sydney, 2 t. £171
Melbourne, 2 170
Adelaide, 1 91

**Disinfectants—**
Sydney, 2 cs. 52 pkgs. 5drs. £126
Iquique, 5 brls. 13
Montreal, 6 cs. 16
Bombay, 200 drs. 110
Hong Kong, 2 cs. 10
Rouen, 6 t. 13 c. 120
Karachi, 1 cs. 9
Natal, 143 pkgs. 73

**Flowers of Sulphur—**
Port Stanley, 1 t. 1 c. £10

**Guano—**
Genoa, 100 t. £1,000

**Manure—**
Bundaberg, 4 t. 5 c. £100
Port Antonio, 2 10
Limon, 7 6 64
Hamburg, 50 500
Jersey, 2 17 15
Bordeaux, 28 10 130
Treport, 29 18 200
Dunedin, 50 295

**Nitric Acid—**
Madras, 16 c. £7

**Oxalic Acid—**
Dunkirk, 15 t. 5 c. £410
Demerara, 3 10 106

**Phosphorus—**
Melbourne, 10 cs. £100

**Potassium Cyanide—**
Shanghai, 5 cks. £26
Calcutta, 5 c. 13

**Potassium Sulphate—**
Sydney, 1 t. £11

**Salicylic Acid—**
Calcutta, 1 t. £113

**Saltpetre—**
Wellington, 2 t. 10 c. £56
Lisbon, 15 15
Canterbury, 10 11

**Sheep Dip—**
B. Ayres, 26 t. 5 c. £728
San Salvador, 30 cks. 226
Falklands, 132 pkgs. 25 cks. 60 drs. 664
Pt. Elizabeth, 1,550 cs. 4,650

**Silver Nitrate—**
Calcutta, 1 cs. £44

**Soda Ash—**
Hobart, 3 t. 2 c. £23

**Soda Crystals—**
Demerara, 16 c. £3
Napier, 10 t. 33
Durban, 1 13 6
Seattle, 25 2 72

**Sodium Bicarbonate—**
Auckland, 4 t. 6 c. £26
Canterbury, 1 8

**Sulphuric Acid—**
Calcutta, 24 cs. £36

**Superphosphate—**
Bordeaux, 25 t. £75

**Tartaric Acid—**
Melbourne, 1 t. £106
Brisbane, 1 106
Sydney, 1 106
Adelaide, 1 15 c. 198

## LIVERPOOL.

*Week ending October 5th.*

**Acetic Acid—**
Vera Cruz, 5 t. 5 c. £115
Lisbon, 7 3 q. 13

**Alum—**
Alexandretta, 17 t. 7 c. £101
Santander, 2 4 1 q. 13
Beyrout, 3 1 15
Catania, 1 5
Bari, 1 5
Sydney, 1 7
San Francisco, 10 9 60
Rio de Janeiro, 1 7
Valencia, 2 3 11
Vigo, 1 1 4
Havana, 15 cks. 26
Ibrail, 3 14 23
Callao, 1 10 14

**Alum Cake—**
Melbourne, 5 t. 3 c. 3 q. £15

**Aluminoferric Cake—**
San Francisco, 5 t. 9 c. £16
Montreal, 20 58

**Aluminous Cake—**
Dunedin, 4 t. 3 q. £12
Calcutta, 18 9 c. 1 46

**Ammonium Carbonate—**
Vigo, 1 t. 3 c. 1 q. £33
Antwerp, 1 28
Halifax, 7 1 10
Naples, 4 120
Leghorn, 1 28
Genoa, 10 14
Copenhagen, 2 17 1 95
Valparaiso, 1 32

**Ammonium Chloride—**
Alexandretta, 10 c. £17
San Francisco, 3 t. 8 68
Bombay, 4 10 150
Smyrna, 10 16
Antwerp, 3 cks. 23
Galatz, 9 16
Trieste, 1 1 3 q. 47
Patras, 12 3 23
Piræus, 6 2 11
Syra, 5 8
Philadelphia, 16 18 2 381

**Ammonium Sulphate—**
Leghorn, 19 t. 1 c. £186
Barcelona, 10 5 103
Nantes, 30 307
Genoa, 102 1 3 q. 1,080
Hamburg, 146 13 1,496
Valencia, 195 6 2 1,940

**Antimony—**
Montreal, 1 ck.
Halifax, 2 c.

**Bleaching Powder—**
Baltimore, 141 cks.
Boston, 1,072
Calcutta, 100
Gothenburg, 10
Hamburg, 26 34 pkgs.
Hamilton, 35 kgs. 5
Lisbon, 114 brls.
Naples, 11
New York, 391 20 20 bxs.
Oporto, 35 brls.
Bilbao, 14
Capetown, 14
Genoa, 30
Montreal, 65
Odessa, 69
Philadelphia, 213
Vera Cruz, 60

**Boracic Acid—**
Havre, 1 t. 2 q. £40

**Borax—**
Antwerp, 2 t. 10 c. 3 q. £173
Stettin, 1 1 1 33
Hamburg, 9 14 3 292
B. Ayres, 100 cs. 50 bdls. 73
Santiago de Cuba, 1 ck. 2 c. 15

**Carbolic Acid—**
Calcutta, 2 cs. 3 c. 1 q. £33
Antwerp, 10 31
Hamburg, 6 t. 17 3 431
Philadelphia, 23 3 405
Montreal, 830 lbs. 17
New York, 1 45

**Carbonate of Lime—**
Oporto, 1 t. 8 c. 3 q. £10

**Castor Oil—**
Accra, 6 cs.
Sierra Leone, 9

**Caustic Potash—**
New York, 7 t. 9 c. £201
Napier, 1 1 39

**Caustic Soda—**
Adelaide, 18 dms.
Antwerp, 35
Baltimore, 50 135 brls.
Barcelona, 430
Bari, 91
Boston, 50 50 bxs.
Ceara, 56
Chicago, 150
Gefle, 30
Hamburg, 58
Havana, 30
Lisbon, 10
Maracaibo, 10
Melbourne, 41
Naples, 125
Newcastle, 70
New York, 883 70 50 brls.
Odessa, 565
Philadelphia, 50
Pisco, 6
Portland, 35
Rotterdam, 56
Rouen, 36
St. Petersburg, 900
San Francisco, 516 10
Seville, 506 150 cks.
Stockholm, 7
Sydney, 79
Talcahuano, 50
Amsterdam, 20 kgs.
Bahia, 25
Bilbao, 106
Brisbane, 30
B. Ayres, 20
Corunna, 16 26
Fiume, 140
Galatz, 67
Genoa, 60
Havre, 18
Louisville, 50
Messina, 35
Montreal, 120
Oporto, 70
Penang, 35 25
Rangoon, 7
Solonica, 10
San Sebastian, 30
Smyrna, 152
Valparaiso, 200 5 cs.

**Chemicals** (*otherwise undescribed.*)
Huelva, 3 q. £10
Limassol, 1 cs. 23
Syra, 6 c. 9
Riga, 1 t. 33
Volo, 5 8
Larnaca, 7 11
Philadelphia, 13 3 325

**China Clay—**
Boston, 1,095 cks.
Montreal, 400 1,740 bgs.
Naples, 40
Rio de Janeiro, 40
Bombay, 633

**Chloride of Lime—**
Montreal, 9 t. 4 c. £75

**Chloroform—**
Bombay, 1 cs.

**Citric Acid—**
Montreal, 3 kgs. £25

**Coal Products—**
**Aniline Colours**
Boston, 10 cks.
Shanghai, 25 cs.
Bombay, 15
**Aniline Oil**
Stettin, 10 dms.
Genoa, 3
**Aniline Salts**
Constantinople, 3 cks.
New York, 15 cs. 28

**Copperas—**
Beyrout, 3 t. 9 c. £7
Salonica, 3 8 7
Syra, 4 9 2 q. 11

**Copper Sulphate—**
Naples, 14 t. 18 c. 1 q. £214
Talcahuano, 4 10 66
Nantes, 4 1 60
Bari, 4 3 60

Genoa, 11 2 3 155
Ibrail, 1 14
Antwerp, 1 1 14
Bombay, 2 10 37
Marseilles, 3 6 45
Barcelona, 50 1 1 701
M. Video, 1 2 15
Ancona, 5 3 72
Galatz, 1 2 14
Venice, 4 16 3 67

**Disinfectants—**
Calcutta, 4 cs. £10
Bombay, 2 t. 14 c. 17

**Guano—**
Malaga, 150 t. £1,350

**Gypsum—**
New York, 73 t. 17 c. £268

**Horn Piths—**
Boston, 60 bls.

**Manganese—**
Antwerp, 5 cks.

**Magnesia—**
Pisagua, 1 cs.
Antwerp, 20
Havana, 5
New York, 10
Santander, 8 cks.
Montreal, 1 t. 10 c. 2 q. £14

**Magnesium Carbonate—**
Vigo, 5 c. 1 q. £11

**Manure—**
Havre, 200 t. 2 c. £865
Rochefort, 300 5 3 q. 1,476
Genoa, 57 2 228
Barbadoes, 1 20 182
St. Nazaire, 1,224 6 1 6,636
Nantes, 60 1 3 148

**Metallic Sodium—**
Rotterdam, 3 t. £445

**Mineral White—**
Philadelphia, 10 bgs.

**Ochre—**
Maranham, 14 brls.

**Oxalic Acid—**
Barcelona, 5 t. 4 c. £136
Trieste, 1 1 q. 28

**Paint—**
Barcelona, 18 dms.
Capetown, 12 1 cs.
Gibraltar, 2 20 kgs.
Halifax, 1 2
Iquique, 1
Lisbon, 63 4 cks.
Maranham, 88 brls. 1 12
Mollendo, 15
Montreal, 3 cs.
New York, 311 71
Pt. Said, 33
St. John's, Nfld., 7 5
Sherbro, 50
Vera Cruz, 7
Accra, 5
Antwerp, 23
B. Ayres, 21
Cadiz, 20 dms.
Callao, 15
C. C. Castle, 3
Carbonear, Nfld., 3
Constantinople, 220
Dixcove, 7 20
Halifax, 7 brls.
Havana, 3
Honolulu, 3
Manilla, 27 pkgs.
Santiago, 2
Valparaiso, 200 5

**Painters' Colours—**
Antwerp, 13 kgs.
Baltimore, 475 cks.
Brass, 72
Boston, 5
Manilla, 1 cs.
Para, 10 15
Pernambuco, 5
Rangoon, 2
St. Petersburg, 50
San Francisco, 50
Santiago, 26
Seville, 1
Singapore, 40 dms.
Talcahuano, 24
Trieste, 40
Vera Cruz, 11
Alexandria, 45
B. Ayres, 20
Calcutta, 160 10
Caleta Buena, 120 1 brl.
Constantinople, 220
Hong Kong, 200 5 tcs.
Leghorn, 3
Malta, 120
Piræus, 1 brl.
Rio de Janeiro, 24 dms. 20 20 brls. 5
St. John's, Nfld., 16

Salaora, 4
Shanghai, 120
Sierra Leone, 4

**Paraffin Wax—**
Naples, 16 bgs. 8 cs.
Odessa, 2
Bilbao, 80
Bombay, 3
San Sebastian, 123

**Pitch—**
Calcutta, 4¾ t.
Iquique, 15 brls.
Galatz, 25 cks.
Genoa, 115 t.
Volo, 2¾

**Potassium Bicarbonate—**
Bahia, 2 c. £5

**Potassium Carbonate—**
New York, 9 t. 16 c. £177

**Potassium Chlorate—**
Ghent, 1 t. 10 c. £85
New York, 20 1,130
Boston, 5 245
Oporto, 5 12
Genoa, 10 28
New York, 2 10 140
Ghent, 3 160
Philadelphia, 8 7 436
Vera Cruz, 4 11
San Francisco, 1 5 72
Hong Kong, 1 48
Danzig, 10 30
Mexico City, 6 25
Capetown, 2 120
Shanghai, 9 8 429
Genoa, 2 111

**Potassium Prussiate—**
Vigo, 1 c. £5

**Salt—**
Amsterdam, 140 t.
Assinee, 24½ 500 sks.
Brass, 5
Calcutta, 1,789
Faroe, 96
E. London, 26¾
Gr. Bassa, 10
Lagos, 139 4 c.
Melbourne, 55
Montreal, 1,279 18
Portland, 600
Pt. Natal, 150 17
Rotterdam, 494
Rouen, 20
St. John's, N.B., 500
St. Petersburg, 100 cs.
San Juan, 1 3
Sinoe, 24
Sydney, 4 4
Valparaiso, 12
Vera Cruz, 10
Wilmington, 50
Abonnema, 20 500
Accra, 5 200
Akassa, 200
Antwerp, 368
Baltimore, 300
Barbadoes, 86 6 c 500
Boston, 700
Brisbane, 55
B. Ayres, 139
Cameroon, 30
Charlottetown, 420
Clarence, 4½
Dixcove, 6 cks.
Galveston, 545½
Ghent, 220
Halifax, 170
Honolulu, 50
Kingston, 5
Manaos, 10
New Orleans, 200
Newport News, 500
New York, 107½
Old Calabar, 50
Quaeboe, 31¾
St. John's, Nfld., 10
Salt Pond, 4¼
San Francisco, 103½
Sierra Leone, 225
Trinidad, 60½
Victoria, 175

**Salt Cake—**
Bari, 202 t. 15 c. £450
Philadelphia, 185 18 462
Dunedin, 10 17 33

**Saltpetre—**
Ceara, 1 t. 11 c. 3 q. £37
Piræus, 7 10 161

**Sheep Dip—**
M. Video, 200 dms. £100

**Soap—**
Aarus, 120 cs.
Algoa Bay, 26 bxs.
Amsterdam, 200
Barbadoes, 1,100

Bombay, 50 8 cks.
Brussels, 400
Callao, 25
Christiania, 270 150 25 bdls.
Gibraltar, 611 6
Iquique, 294 1
Karachi, 1,475 4
Kingston, 2
Montreal, 1
New York, 124
Piræus, 1
Pisagua, 1
Rotterdam, 100
Rouen, 10
St. John's, Nfld., 510 1
San Juan, 50
Syra, 20 pkgs. 20
Toronto, 500
Trinidad, 1,800
Valparaiso, 50 1
Accra, 80
Alexandria, 10
Antigua, 20
Antwerp, 20
Assinee, 30
Axim, 20
Boston, 50
B. Ayres, 26 fkns.
Calcutta, 33 750
Colombo, 12
Constantinople, 300
Elmina, 50
Genoa, 135 brls.
Gr. Bassa, 100
Honolulu, 6
Leghorn, 10
Madras, 5
Manilla, 2
Quittah, 50
St. Lucia, 200
Shanghai, 500
Sierra Leone, 160

**Soda Alkali—**
Catania, 10 brls.
Lisbon, 45
Odessa, 50

**Soda Ash—**
Barbadoes, 15 brls.
Bombay, 111 cks.
Boston, 757 2,934 bgs.
B. Ayres, 200 100
Callao, 10
Gothenburg, 300
Havana, 3
Leghorn, 8
Melbourne, 113
M. Video, 45
Naples, 10
Patras, 20
Porto Alegre, 155
Rio Grande, 100
,, de Janeiro, 206 100
San Francisco, 140
Smyrna, 5 350
Sydney, 294
Victoria, B.C., 26
Baltimore, 536 3,020
Genoa, 14
Hamburg, 50
Malta, 17
Maranham, 10
Montreal, 48 56 80
New Glasgow, 13
,, York, 786 123 tcs. 5,592
Philadelphia, 2,727 119 brls. 3,367
Puerto Cabello, 3
Salonica, 5
Syra, 15
Toronto, 5
Valleyfield, 39
Windsor Mills, 94

**Soda Crystals—**
Bombay, 200 kgs.
Boston, 1,680 brls.
Constantinople, 117
Honolulu, 10 3 cks.
Montreal, 167
New York, 514
Portland, 25
Belleville, 50
Brantford, 70
B. Ayres, 50
Gibraltar, 25
Halifax, 50
Hamilton, 25
Ibrail, 25
Kingston, 50
Langston Mills, 20
Malta, 33
Oporto, 12
St. Mary, 20
Smyrna, 50

**Sodium Arseniate—**
Lisbon, 2 cks.
Rouen, 5
Pasages, 1

**Sodium Bi-arseniate—**
Lisbon, 2 tks.

**Sodium Biborate—**
Hamburg, 21 t. 16 c.

**Sodium Bicarbonate—**
Adelaide, 50 kgs. 4 cks.
Alexandretta, 10
Amsterdam, 20
Ancona, 20
Bombay, 201
B. Ayres, 50 140
Christiania, 20
Dunkirk, 9 2
Hamburg, 25 28 5
Havana, 20
Madras, 30
Melbourne, 417 48
Oporto, 20
Rotterdam, 40
St. Petersburg, 1,490
Sydney, 134
Tampico, 10
Trieste, 25 18
Trinidad, 30
Vera Cruz, 30
Alexandria, 30
Belleville, 50
Brantford, 50
Catania, 60
Genoa, 90
Halifax, 35
Hamilton, 100
Havre, 192
Kingston, 300
Leghorn, 50
London, O., 150
Marseilles, 15
Naples, 125
Newcastle, N.S.W., 7 pkgs.
Toronto, 30 bgs.
Valencia, 75 brls.

**Sodium Perchlorate—**
Hamburg, 42 cks.

**Sodium Carbonate—**
Boston, 168 brls
New York, 224

**Sodium Chlorate—**
New York, 200 bgs.
Boston, 50 kgs.

**Sodium Hyposulphite—**
Portland, 50 kgs.

**Sodium Phosphate—**
Pasages, 2 cks.

**Sodium Silicate—**
Lisbon, 6 cks.
Victoria, B.C., 32
Barcelona, 120 brls.
Corunna, 17
Naples, 12
Salonica, 4 cks.

**Sulphate of Lime—**
Rio de Janeiro, 19 t. 3 c.

**Sulphur—**
Philadelphia, 70 t. 1 c.
Boston, 465 6
Montreal, 50 2
Rio de Janeiro, 20 2
Pernambuco, 1 12 3 q.

**Superphosphate of Lime—**
Philadelphia, 500 t.

**Tallow—**
Alexandria, 40 brls.
Bilbao, 25
Dixcove, 2 cs.
Oporto, 22 cks.

**Tar—**
Cette, 1,770 t.
Galatz, 100 brls.

**Tin Crystals—**
Trinidad, 2 t. 2 c. 3 q.

**Turpentine—**
Colombo, 10 dms.

**Varnish—**
Singapore, 2 cs.
Caleta Buena, 1
Catania, 2 cks.
Genoa, 4 1 4 brl
Halifax, 1 dm
Leghorn, 12 11
Seville, 2

**Waste Salt—**
Bombay, 100 cks. 5 t.

**White Lead—**
Malta, 20 kgs.
New York, 27

**Zinc Chloride—**
Bombay, 2 t. 5 c.

**Zinc Sulphate—**
New York, 47 bgs.

**Zinc White—**
New York, 18 kgs.

## LASGOW.

*ending October 6th.*

25 t. 16 c. £240
6 9 70

**um Sulphate—**
76 t. 9¾ c. £760
23 3¾ 253
175 9¾ 1,755
m, 27 275
10 3 95
, 67½ 682

**e—**
5 t. 2½ c. £163

**g Powder—**
e, 19 t. 16¾ c. £135
3 t. 13¾ c. £100

**atte—**
m, 9 t. 15¾ c. £490

1 t. ¾ c. £51

e, 1 t. £25

**ts**
3¼ c. £53
e, 1 t. 7¼ c. £67

**Oil—**
4 t. 7 c. £84
a, 7 4 157
2 42

87 t. 7 c. £530

**f Lead—**
5 t 3¾ c. £95

10 t. £40
a, 1 6¼ c. 28
68¾ 85

**Colours—**
£131
100
85
e, £20. 12s.

**Wax—**
ople, 13¾ c. £20
3 t 4 105
a, 6 5 126
5 168
a, 1 2¾ 36

1,012 t. £1,420
263 214
n, 100 150

**n Bichromate—**
14 t. 19½ c. £594
17¼ 35
, 2 cks. 28

1 t. 8½ c. £29
6 12½ 67

**Bichromate—**
6 t. 16½ c. £223
3 8¼ 112
, 14 cks. 198

**Nitrate—**
11 t. 3 c. £98

**Chloride—**
13 c. £44

2 t. 13¾ c. £20
3 12¾ £24. 14s.

£58
g, 8 t. 5 c. 20
11 2
250 brls. 150
1,700 699

19¾ c. £25

## HULL.

*ending October 1st.*

3 cks.
4

**Sulphate—**
54 cks.

**n—**
1 cs.
, 1
1 ck.
urg, 2

**Bichrome—**
Rotterdam, 13 cks.

**Bleaching Powder—**
Bremen, 14 cks.
Bombay, 100 dms.
Danzig, 119
Gothenburg, 28
Libau, 14
Stettin, 375

**Borax—**
Amsterdam, 5 cks
Copenhagen, 2 cs.
Riga, 3
Stettin, 20

**Carbolic Acid—**
St. Petersburg, 1 cs.

**Caustic Soda—**
Abo, 12 dms. 15 kgs.
Danzig, 475
Bombay, 75
Hamburg, 18
Helsingfors, 14 cks.
Libau, 125
Riga, 144
Stettin, 36
Wasa, 4
Wyburg, 18

**Chemicals** (*otherwise undescribed*)
Antwerp, 23 cs. 2 cks. 2 pkgs.
Amsterdam, 40
Bremen, 8
Bombay, 18 230 dms.
Christiania, 2 16 30
Copenhagen, 6 202 354 pks.
Dunkirk, 48
Drontheim, 316 slbs.
Gothenburg, 41 210 kgs.
Ghent, 4
Hamburg, 363 277 24
Harlingen, 500
Helsingfors, 2
Konigsberg, 10
Kurrachee, 277 210
Libau, 4 30
New York, 50 50
Rotterdam, 81 20 6 3
Riga, 1 15
Stockholm, 1
Stettin, 1 37 16 pkgs.
Wasa, 1 3

**Copper Sulphate—**
Helsingfors, 2 cks.

**Cottonseed Oil—**
Antwerp, 274 c.
Amsterdam, 200
Bremen, 34
Bergen, 7
Flushing, 202
Gothenburg, 140
Hamburg, 1,426
Konigsberg, 52
Norrkoping, 17
Rotterdam, 1,965
Stockholm, 99
Stettin, 300

**Creosote—**
Christiania, 20 cks.
Copenhagen, 30
Gothenburg, 20
Rotterdam, 35

**Dyestuffs** (*otherwise undescribed*)
Amsterdam, 1 cs.
Christiania, 40 cks. 12 bgs.
Danzig, 1
Gothenburg, 6
Rotterdam, 3 kgs.
Riga, 1 2
St. Petersburg, 34
Stettin, 255 bls. 2

**Guano—**
Dunkirk, 286 bls.

**Linseed Oil—**
Antwerp, 13 c.
Amsterdam, 205
Bremen, 50
Bombay, 206
Christiania, 225
Copenhagen, 72
Drontheim, 7
Danzig, 66
Hamburg, 4
Kurrachee, 10
Rotterdam, 35
Stavanger, 20

**Manure—**
Bremen, 90 bls.
Hamburg, 111 t. 1,183 bgs.
Rotterdam, 20
Stettin, 50 100

**Mineral White—**
Bergen, 60 sks.

**Painters' Colours—**
Abo, 6 cks. 60 dms.
Antwerp, 1 cs 37 105
Bremen, 1
Bombay, 74 1 539 pks.
Christiania, 6
Christiansund, 4
Copenhagen, 19
Drontheim, 1
Flushing, 1
Ghent, 2
Konigsberg, 7
New York, 100
Rotterdam, 6 cs. 3 3
Rouen, 6
Riga, 6
Stockholm, 3 10
St. Petersburg, 30
Stettin, 24
Wasa, 11 14 pkgs.
Wyburg, 8

**Pitch—**
Antwerp, 462 t
Copenhagen, 24 c.

**Sheep Dip—**
Hamburg, 2 cks.

**Size—**
Rotterdam, 10 cks.

**Soap—**
Stockholm, 14 cs.

**Sulphite Pulp—**
New York, 76 t.

**Tallow—**
Amsterdam, 15 cks.
Bremen, 94
Harlingen, 1

**Tar—**
Amsterdam, 6 cks.
Danzig, 5
Flushing, 1 cs.
Hamburg, 19
Rotterdam, 8
Stettin, 3
Wasa, 30

**Varnish—**
Antwerp, 2 cs 3 bls 4 cks.
Bombay, 75 dms.
Christiania, 2 1
Copenhagen, 1 6
Gothenburg, 2
Hamburg, 17 1

## TYNE.

*Week ending October 1st.*

**Alkali—**
Hamburg, 5 t. 10 c.
New York, 99
Amsterdam, 23 5
Rotterdam, 2 4
Danzig, 10 9

**Alum—**
Seville, 1 t. 1 c.
Barcelona, 10 13

**Alum Cake—**
Copenhagen, 10 t.
Montreal, 15

**Ammonia—**
Villa Real, 13 c.

**Ammonium Sulphate—**
Hamburg, 20 t.
Rotterdam, 15

**Anthracene—**
Rotterdam, 24 t. 11 c.

**Antimony—**
New York, 60 t.

**Arsenic—**
Montreal, 18 t. 5 c.

**Barium Binoxide—**
Dunkirk, 17 t. 15 c.

**Barytes—**
Hamburg, 40 t.
New York, 10 14 c.

**Bleaching Powder—**
Hamburg, 20 t. 5 c.
Antwerp, 28 13
San Francisco, 70 19
Christiania, 85 5
Odense, 7 16
St. Petersburg, 286 15
Danzig, 154 2
Lisbon, 15 2
Amsterdam, 8 1
Rotterdam, 43 8
Copenhagen, 29 17
Montreal, 55 1
Bergen, 6 2
Dunkirk, 10 1
Riga, 30

**Caustic Soda—**
Antwerp, 32 t. 3 c.
St. Petersburg, 86 11
New York, 156 13
Lisbon, 15 1
Seville, 72 3
Amsterdam, 2 18
Copenhagen, 7 18
Valencia, 6
Montreal, 14 10
Barcelona, 10
Genoa, 28 17
Danzig, 10 3
Riga, 45 2

**Chemicals** (*otherwise undescribed.*)
Villa Real, 6 c.

**Hydrochloric Acid—**
Villa Real, 16 c.

**Litharge—**
Antwerp, 2 t. 7 c.
Amsterdam, 11
Ghent, 16
Montreal, 67 5

**Magnesia—**
Hamburg, 11 c.
Antwerp, 1 t. 2
St. Petersburg, 1 14
New York, 2 18
Barcelona, 7 10

**Nitric Acid—**
Villa Real, 9 c.

**Oxalic Acid—**
Antwerp, 5 t. 4 c.
New York, 5 10

**Paint—**
Ergasteria, 2 c.

**Picric Acid—**
New York, 3 c.

**Rosin Oil—**
Hamburg, 9 t. 13 c

**Soda—**
Antwerp, 5 t. 7 c.
Helsingfors, 3 4
Christiania, 10 1
Amsterdam 10 15
Montreal, 80 2

**Sodium Hyposulphite—**
New York, 25 t. 1 c.
Montreal. 2 10

**Sodium Silicate—**
Barcelona, 6 t. 15 c.

**Sodium Sulphate—**
Delfzyl, 100 t. 1 c.

**Sulphur—**
Antwerp, 25 t.
Rotterdam, 15
Montreal, 60

**Tallow—**
Hamburg, 18 c.

**White Lead—**
Lisbon, 3 t. 7 c.
Montreal, 133 16
Trondhjeim, 4

## GOOLE.

*Week ending September 21st.*

**Chemicals** (*otherwise undescribed*)
Antwerp, 2 cks.
Ghent, 1 2 cs.
Rotterdam, 138

**Dyestuffs** (*otherwise undescribed*)
Antwerp, 1 ck. 20 dms.
Boulogne, 1
Hamburg, 3 2

**Manure—**
Antwerp, 500 bgs.
Hamburg, 11 cks.
Rouen, 250

**Pitch—**
Antwerp, 229 t.
Rouen, 16 bgs.

## GRIMSBY.

*Week ending September 24th.*

**Caoutchouc—**
Esbjerg, 1 cs.
Gothenburg, 1 bl.
Malmo, 1

**Chemicals** (*otherwise undescribed*)
Dieppe, 10 cks. 19 pkgs.
Hamburg, 165 81

**Dyestuffs** (*otherwise undescribed*)
Dieppe, 4 cks.
Malmo, 1 cs.

**Tar—**
Dieppe, 447 cks.

# PRICES CURRENT.

WEDNESDAY, Oct. 12th, 1892.

Prepared by Higginbottom and Co., 116, Portland Street, Manchester.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids :—** | | | | |
| Acetic, 25 °/₀ and 40 °/₀ | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | 50/- | | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 °/₀) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 15 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 1 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 10 | 2 | 6 |
| ,, ,, (grey) Hull | ,, | 10 | 2 | 6 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett | 8 | 7 | 6 |
| ,, Liquor, 7 % | ,, | 3 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes :—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8¾ |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 9½ |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 7 |
| ,, 50/90 ,, | ,, | 0 | 1 | 6 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 5¼ |
| ,, (crude 60°) | per gallon | 0 | 1 | 5 |
| Creosote (ordinary) | ,, | 0 | 0 | 1½ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 1 | 0 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 45 | 10 | 0 |
| ,, Sulphate | ,, | 15 | 0 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 12 | 6 |
| ,, Litharge Flake (ex ship) | ,, | 13 | 10 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 6 | 0 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 3 | 10 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 4 | 3 |
| **Oils :—** | | | | |
| Cotton-seed | per ton | 20 | 0 | 0 |
| Linseed | ,, | 20 | 0 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 7½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 12 | 6 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 | 0 |
| Silver (metal) | per oz. | 0 | 3 | 2½ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 48 % | ,, ,, | 5 | 7 | 6 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 5 | 15 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 18 | 10 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 15 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Borate (Borax) | net, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda) (f.o.b.) | net pr. ton (10 ton lots) | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 15 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 4½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¾ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 15 | 0 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7¼ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7½ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone : Best Quality (nominal) | ,, | 5 | 0 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 97 | 10 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 18 | 17 | 6 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# HEMICAL TRADE JOURNAL

AND

## OIL, PAINT and COLOUR REVIEW.

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ers, filter press by Dehne fitted 12 chambers, 30in. centrifugal machine,
ons scrap iron, quantity iron-bound tubs, bottles, and effects.
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h the office by **Wednesday morning** at the latest.

## THE ENERGETIC EXCISE OFFICER AGAIN.

IT is strange how much trouble some people will go to over nothing, and often in their excessive assiduity overlook the very thing for which they have been told to seek.

The perversity of human nature is frequently portrayed in this manner. How often do we find people engaging with avidity in some inane task, and taking infinite pains and labour to ascertain how many peas there are on the average in a pea-shuck, or something equally useful, while they would grudgingly bestow even one-third the trouble if expended in attempting to establish one item of useful information towards elucidating some problem of every-day occurrence.

To endeavour to say why such is the case would involve an abstruse ethical discussion which would be wholly out of place here, but, undoubtedly, there are a good many people whose minds are constituted that way, and pre-eminent among such stands the average excise inspector. Fortunately there are exceptions, but as a general rule if there is an adept disciple of Paul Pry it is the Inland Revenue Inspector.

Of late he has appeared in several new guises, and seems to have found a happy hunting ground in the chemical trades and analytical profession, which *terra incognita* has been explored with marvellous persistency. How grievous it is to think that so much misdirected energy has been uselessly expended.

The possibility of stills being subjected to taxation, even if only used by analysts for producing pure water, has been raised before, and matters have even gone so far that a notice has been served in one case on an analytical chemist, intimating that he must obtain a licence for the use of his distilled water apparatus.

Thanks principally to the energy of the secretary of the Institute of Chemistry the matter, which was taken up by the Council of that body, has been carried to an issue which may virtually be termed a satisfactory one, and we published in our columns a few weeks since a letter which had been sent to the Council of the Institute of Chemistry from the Board of Inland Revenue, explaining that the Board had no intention of taxing such stills when used for their legitimate purpose, and in the event of the Board's officers enforcing compliance with such a proposition, the Board would give "careful consideration" to the cases submitted to them.

So well and good, but we have yet to proffer our condolence to the disappointed officers. However, let them not be disheartened, even though the opening to such a promising field for investigation has been thus peremptorily and promply closed, for we can perhaps give credence to our consolation by pointing out "fields fresh and pastures new" where a more suitable pabulum may be found on which the "desire to licence" may feed itself.

In their present quandary, the ancient Æsopian simile of the thirsty pigeon, who seeing a goblet of water painted on a

sign-board, and not perceiving it was a picture, dashed at it with a whirr and broke its wings, is called to mind with fitting recurrence; nevertheless, following up the present line of action, why not include articles of domestic utility in the category of taxable stills? There is the ordinary greenhouse heating apparatus, with its boiler and pipes. How easy it would be to use that boiler as a still and the pipes as condensing worms, cooled by the surrounding air, thus killing three birds with one stone, viz., condensing the spirit vapour into liquid alcohol, heating the greenhouse, and defrauding the Inland Revenue. At any rate, the idea is as feasible as making saleable alcohol from a sulphate of ammonia still.

If carried further, the kettle used for steaming a room in cases of bronchitis might possibly be included, as there is a somewhat suspicious aspect about the long-projecting spout suggestive of use for illicit purposes, while, if carried to its ultimate end, we may yet hear of an injunction against the Sun to restrain it from using the sea as a rain-still because it has not obtained a licence. Bearing in mind the fate of the thirsty pigeon, we would, however, venture to suggest that excise officers see in future that zeal does not out-run discretion.

The necessity for analytical chemists to obtain *permission* to use a still or retort remains yet, and though such is the case we should, as a matter of curiosity, like to know how many (if aware of their obligations to the Inland Revenue Board) intend to obtain that permission—how many? Perverting the words of a well-known ditty it seems to be a case of:—

Oh! Analysts, said the Excise Board,
If unlicensed stills you run,
Will you permission ask of us?
But answer came there none.
And this was scarcely odd because
They'd ignored it every one.

## POLLUTION OF THE RIVERS IRWELL AND ROACH.

### The Bury Corporation Fined.

(*Concluded from page* 239.)

On the 23rd inst. the hearing of the two summonses brought by the Mersey and Irwell Joint Committee against the Corporation of Bury was again resumed, Dr. Pankhurst proceeding to state the defence. In so doing he first of all drew attention to the Public Health Act of 1848 which led to the Public Health Act of 1875. In the Act of 1848 there was a certain clause, namely, section 145, which was repealed by the Local Government Act of 1858, but a reserving clause in reference to certain water rights was retained. Practically speaking, the two Acts up to that time in effect meant that nobody could interfere with the Corporation for polluting the rivers Irwell and Roach unless it was proved either that there was a public nuisance or that there was an injury to private rights. The Sewage Utilisation Act of 1865 followed, which, however, did not include such a district as Bury. The next Utilisation Act was passed in 1867, and this undoubtedly did bring Bury within its scope, but he pointed out that this Act contained nothing which prohibited Bury from polluting the rivers Irwell and Roach, so that up to 1867 there was nothing to prevent Bury from doing what it was doing at the present time. Then came the Public Health Act of 1875, and this he contended contained no prohibition against Bury turning its sewage into the river, for though the Act of 1875 did not enable them to pollute the rivers, it did not prohibit them, a distinction which, in his opinion, was a vital one. Having turned its sewage into the rivers for more than twenty years, Bury had acquired a prescriptive right to do so, unless proof was given of a public nuisance, and there was no proof of a public nuisance in this case. Dr Pankhurst further called attention to the fact that Bury, owing to its position on the river, turned its sewage into the same in a purer state than the effluent which passed from the sewage works at Salford. In reference to the Mersey and Irwell Act of 1892, he contended that as regards delivery of sewage into rivers or prescriptive rights, this Act was identical with the Rivers Pollution Act, which being a general Act would not repeal any particular Act without express reference to it. Consequently any local act which might have been passed with regard to the sewage of Bury, would be unaffected by the Acts of which he had previously made mention.

Mr. Sutton: I should be glad if my learned friend would point to any Act giving Bury the power to pour its sewage into the rivers Irwell and Roach.

Dr. Pankhurst: I am about to do so. The Act which I have in my mind is the Bury Improvement Act in 1846 containing the following clause—"And be it enacted that it shall be lawful for the Commissioners from time to time to cause to be constructed and made such and so many main and other sewers and drains as they shall think necessary and proper for the effectual draining within the limits of this Act, and also to cause such sewers to communicate with, and empty themselves into, any public river, stream, or water-course." That was the authority.

Mr. Sutton: Read on.

Dr. Pankhurst (continuing the clause) read as follows—"Or to cause the refuse from such sewers to be conveyed by an appropriate channel to the most convenient site for its collection and sale and its application as manure for agricultural purposes as may be deemed most expedient, but so that the same shall in no case become a public nuisance or annoyance to the neighbourhood."

Continuing, Dr. Pankhurst said that this local Act had in no way been affected by any subsequent Act either in 1875 or as late as 1892, and he cited cases in support of his contention that Bury had prescriptive and statutory rights to continue the course which it was at present following. In conclusion, he contended that if Bury did set up a polarite or some other system of sewage treatment, it was impossible to avoid sending some liquid sewage into the river. No effluent that went into the Irwell was absolutely free from sewage matter, and, therefore, the Act under which the prosecution had been brought entailed the performance of an impossibility.

Mr. Sutton said that with regard to Dr. Pankhurst's last remark, if sewage works were constructed and all proper precautions taken to obtain as pure an effluent as possible, the magistrates would know how to deal with the case. The law did not intend public bodies to accomplish impossible things. Further, if the Act of 1846 did give the commissioners power to empty their sewers into the public water-course, that power was subject to limitation.

Dr. Pankhurst: Will my learned friend read the limitation.

Mr. Sutton (continuing) said the words to which he referred were—"So that the same shall in no case become a public nuisance or annoyance to the neighbourhood." There was also another way of answering Dr. Pankhurst's argument. Although the Rivers Pollution Act, being a general Act, could not repeal Bury's local Act of 1846, the Act of 1892 was a special Act "to make more effectual provision for the prevention of the pollution of the rivers Irwell and Mersey and their tributaries," in which the saving clause with regard to local authorities was expressly omitted.

The Court adjourned at this point for luncheon.

The Chairman, on the Court re-assembling, read the following decision of the magistrates—"We fine the Mayor, aldermen, and burgesses of the county borough of Bury the sum of £5. and costs in each case. We further order that the liquid and other sewage matters be diverted from the rivers Irwell and Roach within twelve months from the date hereof."

Mr. Sutton asked for costs.

The Chairman: We have already said with costs.

Dr. Pankhurst called the attention of the Court to the manner in which the decision was worded. In the Act and summonses the words "liquid sewage matter" were used, while the court in their order made use of the words, "liquid and other sewage matters." He thought the Court was not competent to go beyond the words of the Act.

Mr. Sutton: With the permission of the Court I would like to submit a form of conviction.

Dr. Pankhurst: I object.

Mr. Sutton said in the matter of costs he must ask the court to fix the amount then and there as his clients would not consent to be taxed out of Court. He asked that the sum of £100. should be awarded.

The magistrates retired to consider the point. On returning, the chairman intimated that a slight alteration had been made in the form of their decision. It would now read as follows:—"We fine the Mayor, aldermen, and burgesses of the county borough of Bury the sum of £5. and £20. costs in each case. We further order that the Mayor, aldermen, and burgesses of the county borough of Bury shall abstain from causing to flow, or knowingly to permit to fall or flow or to be carried into the rivers Irwell and Roach, any liquid sewage matter, and to divert the said liquid sewage matter from the said rivers within twelve months from the date hereof."

## DETERMINING SODA IN SOAP.

By Wilson H. Low.

ordinary method of soap analysis, the sample is dissolved in ral alcohol and filtered from any insoluble residue, which is dried and weighed and further examined if necessary. The the alcoholic solution together with other matters soluble in alcohol, such as a small amount of carbonate of soda, the whole t the whole of the chloride and sometimes other matters of r vegetable origin. A little phenol-phthaleïn is added to the to serve as an indicator and if alkaline, acid is added to neutra- the amount used calculated to sodium hydroxide, and if acid, added and the amount calculated to fatty acid. Neither of ations expresses the exact truth but they are the ones generally l for the purpose. The main errors are due to the fact that arbonate is soluble to a slight extent in ordinary alcohol, and alkaline reaction with phenol-phthaleïn, this being estimated c, and also the combining weight of the free fatty acid or acids known very closely and is by no means necessarily the same as combining weight of the mixed fatty acids in soap. In fact, fatty acid has generally a very different combining weight. This rce of error is usually greater than the estimation of caustic as bining weights of the fatty acids are so high it is a difficult thing te exactly in small quantities. It is my custom unless the free ids are present in considerable quantity, to disregard them This does not apply to the free fat and unsaponifiable matter, e determined in a different manner.

the above operations the soap is present as a neutral compound with the other matters soluble in alcohol. The solution is ed to dryness to expel the alcohol and then dissolved in hot d an excess of standard acid run in to set free the fatty acids. e separated from the acid solution in any suitable manner, and r should be shaken with neutral ether to remove any fatty acids solution, and the ether solution evaporated to dryness and the weighed and added to the weight of the main lot of fatty acids. ther is evaporated from the acid solution and then, after cooling, ss of acid used is estimated by back titration with alkali, using orange as indicator. The amount of salt or chloride is next y titration of the neutral solution with silver nitrate.

bove gives a general idea of the ordinary or regular method of alysis. It does not pretend to go into details or to indicate the nation of many things that may be present; to do so would a small volume, as I know of no more complicated mixture than mmercial samples of soap. Familiarity with their examination nly way to learn how to analyse them.

n be seen by the scheme outlined, several operations will be ed and considerable time consumed before the soda combined e fatty anhydrides as soap will be known. As it is often a of importance to determine this in a short time some quicker was looked for. Direct ignition of the soap and titration of idue is only applicable to a pure soap containing no free or ted alkali; further, another portion of the soap must be weighed e other constituents are wanted.

(II, 260) states that the combined soda in a soap may be ned in aqueous solution by adding standard acid gradually till orange indicates a slight excess. My own experience confirms t is done carefully, and the solution is not too hot. The tendency t in too much acid, as the separated fatty acids give the liquid a ppearance which somewhat masks the end reaction.

lacmoid solution may be used in place of methyl orange, but es no particular advantage in aqueous solution. In any case the can only be used when there is no free caustic or carbonated

s notes on the various indicators and their behaviour in different s under changed conditions, R. T. Thomson states that "*red paper* shows almost instantaneously even a slight alkalinity, strongest alcohol, and if the alcohol containing a trace of alkali ured blue with lacmoid solution, one drop of normal acid will the colour immediately." This statement has been confirmed writer, and also if 100 to 200 c.c. of neutral alcohol be coloured blue with a lacmoid solution, one drop of normal acid will give g bright red colouration, which change from blue to red is very

mson further states in regard to methyl orange, "100 c.c. of requires at least 0·5 c.c. of normal acid to effect even a slight in colour. Several cubic centimetres are necessary to bring out l colour. The end reaction is indistinct. When diluted with six times its volume of water, alcohol has very little effect on orange and its effect may be disregarded.

thus seen that while blue lacmoid solution and methyl orange the same in aqueous solution, in alcoholic solution methyl is useless.

From the fact that blue lacmoid solution was affected very little, if any, by ordinary insoluble fatty acids when separated from aqueous solution and also that it was a good indicator of mineral acids in alcoholic solution, it was hoped that the fatty acids in alcoholic solution would have little effect on the indicator. This was found to be the case and is the foundation of the present process.

When blue lacmoid solution is added to a boiling hot neutral solution of soap in ordinary alcohol, it gives the liquid a bluish tint and of about the same shade as if no soap were present. Now on adding a drop of normal acid, little, if any, change will occur, and the blue tint will remain on further addition of acid till within a few cubic centimetres of the end point, when the indicator begins to lose its colour and appears like fine black particles mixed with clear water. A little more acid causes the indicator to give a slight reddish tint to the liquid. It is not a pure red, and nothing like the red given by the final reaction. When this point is reached the acid should be added slowly or drop by drop till the indicator gives the liquid a pure bright red colouration. This point is easily distinguished from the previous reddish tint and further addition of acid causes no change in it. In a colourless soap solution the change is well marked, and even in solutions of soap of themselves a yellow or brown colour the end reaction is apparent by the change to a pure bright colour something like the clearing up of the solution. The amount of indicator to use depends on the depth of colour of the original soap solution. Enough must be used so that its change of colour will mask or overcome any given by the soap itself. In turbid soap solutions, caused by insoluble matter in suspension, the clear bright red colour cannot be seen, but the end point of the reaction is so well marked by a decided change in the colour of the liquid, that further addition of acid does not alter it. A little practice will make it clear when the end reaction occurs. The one thing to emphasize is to *accept no doubtful or obscure end reaction*, but to run in acid till the change is decided and further addition of acid leaves the liquid of the same tint. If this is attended to with some practice the soda combined with the fatty anhydrides as soap can be titrated accurately.

In a mixture of soap and carbonated alkali the soda in each can be determined without filtration and more accurately than when the carbonate is removed by filtration and subsequently titrated or weighed by itself. The source of error in this last method lies in the fact that sodium carbonate is somewhat soluble in ordinary or aqueous alcohol and passes into the filtrate with the soap and in the ordinary analyses finally turns up and is estimated as soda combined as soap. This error is greater the more alcohol there is used and the more water it contains. If little alcohol be used some soap is apt to be left with the sodium carbonate, as in washing powders the mixture of soap and soda ash is so intimate that complete solution of the soap does not take place immediately and sometimes long soaking in warm alcohol is the best way to effect solution.

In the method indicated below the above objections do not enter and the total sodium carbonate is estimated as such and the soda in the soap determined as well.

Weigh out a few grams. of the soap into a flask and treat with 50 to 100 cubic centimetres of neutral alcohol. Heat to boiling to effect the solution of most of the soap at least and then run in enough normal hydrochloric acid to more than decompose the carbonate present. Heat to boiling and continue the boiling five to ten minutes to completely expel all the carbon dioxide. A good strong ebullition is necessary to do this. Now add some phenol-phthaleïn to serve as indicator and titrate back with sodium hydroxide to pink colour with the indicator. In the first operation all the carbonate was decomposed and part of the soap, so that free fatty acids were present; in the second operation the alkali was restored to the fatty acids leaving a neutral soap solution and the difference between the total amount of hydrochloric acid added, and the amount of hydrochloric acid equivalent to the sodium hydroxide used in back titration is a measure of the carbonated alkali. The soda in the soap is now estimated as given above by means of standard hydrochloric acid and blue lacmoid solution as indicator. If the combining weight of the fatty anhydrides is known they may be calculated from the soda found as soap; but usually they are not known accurately and have to be estimated by weight. A good method of doing this is to add alkali to the above alcoholic solution till the free fatty acids are again made into soap and then evaporate off the alcohol on a water or steam bath. Treat the residue with hot water and set free the fatty acids with a slight excess of standard hydrochloric acid. As soon as the acids have run clear, cool the solution, with constant agitation to break up the solidified fatty acids into pieces about the size of a pin-head. When perfectly cold the fatty acids are removed from the solution of neutral salts by filtration through paper or a Gooch crucible. They are washed somewhat with cold water to remove soluble salts, and if they are cold there is no tendency to pass through the paper. A Gooch crucible with a gentle suction is much the best for this purpose. Draw air through a short time after the washing to get rid of all the water possible and then placing the filter over a weighed flask, run hot alcohol (the stronger the better) upon the fatty acids. They dissolve and pass into the

flask. Wash the filter well, and to the filtrate add a small amount of phenol-phthaleïn and titrate to neutrality or slight alkalinity with normal or half normal *alcoholic* soda free from carbonate. We now have present in solution a neutral soap made from the original fatty acids, which has not undergone heating or unnecessary exposure to air, and they have not lost weight by becoming anhydrides, as sometimes happens on drying fatty acids in an oven. There is no glycerine present, and all that is wanted to determine the combining weight of the anhydrides directly is to evaporate the soap solution to dryness and weigh. The amount of soda present is known and the difference is fatty anhydrides. This method is more accurate than weighing the fatty acids and multiplying by 0·97, and it is certainly less liable to error. If there were any soluble fatty acids in the original soap they may have passed into the filtrate from the insoluble acids and to determine them the liquid is shaken with ether, the ether solution mixed with a little alcohol and phenol-phthleïn and alcoholic soda run in to neutrality. The soap formed is evaporated to dryness and weighed as before. No assumption has to be made as to what fatty acid or acids are present.

The experiments showing the applicability of blue lacmoid solution as an indicator for titrating combined alkali in an alcoholic soap solution are given below. Solutions used:

*Hydrochloric acid solution.*—1 c.c.=0·024938 gms. soda=0·042608 gms. sodium carbonate. This was standardised by sodium carbonate, using phenol-phthaleïn as indicator in boiling solution. The sodium carbonate used contained 99·90 per cent. sodium carbonate as calculated from a determination of carbon dioxide.

*Sodium hydroxide solution* (freed from carbonate, etc., by means of Millon's base.—1 c.c.=0·6200 c.c. hydrochloric acid solution, using phenol-phthaleïn as indicator in cold or boiling solution. 1 c.c.= 0·6217 c.c. hydrochloric solution with methyl orange in cold aqueous solution. 1 c.c.=0·6219 c.c. hydrochloric acid solution with blue lacmoid in hot alcoholic solution. These values are for running to decided alkaline reaction.

Burette readings were all corrected for calibration errors and at least three minutes drainage allowed. In all the following tests an unknown quantity of fatty acids was taken and made into soap by running in sodium hydroxide solution to just alkaline reaction to phenol-phthaleïn, the titration being in boiling hot alcoholic solution. The quantity of sodium hydroxide run in was not noticed till after the titration with acid, so that it should be no guide as to how much acid would be needed; also, in running in the acid, the burette was not watched, and every care was taken that the result should be wholly unaffected by any previous knowledge of quantities.

The results are expressed in terms of the hydrochloric acid solution as being the simplest way of comparison.

*Experiment No.* 1.—About 5 gms. of stearic acid taken, dissolved in 100 to 150 c.c. of neutral alcohol and heated to boiling. Made into soap by adding standard sodium hydroxide solution till just alkaline to phenol-phthaleïn. We now have practically a neutral soap solution and the soda combined as soap is found by titrating with hydrochloric acid, using blue lacmoid as indicator.

| | Burette reading. | Corrected reading. | Equivalent in HCl sol. |
|---|---|---|---|
| NaOH used | 35·23 c.c. | 35·22 c.c. | 21·90 c.c. |

The exact amount of soda used was found—

| | | | |
|---|---|---|---|
| HCl ,, | 21·98 ,, | 21·90 ,, | 21·90 ,, |

*Experiment No.* 2.—About 1 gm. of stearic acid taken.

| | Burette reading. | Corrected reading. | Equivalent in HCl sol |
|---|---|---|---|
| NaOH used | 7·71 c.c. | 7·70 c.c. | 4·79 c.c. |
| HCl ,, | 4·90 ,, | 4·87 ,, | 4·87 ,, |

Difference 0·08 c.c.

*Experiment No.* 3.—About 2 gms. of palmitic acid taken and treated in the same way.

| | Burette reading. | Corrected reading. | Equivalent in HCl. sol. |
|---|---|---|---|
| NaOH used | 14·57 c.c. | 14·57 c.c. | 9·06 c.c. |
| HCl ,, | 9·08 ,, | 9·02 ,, | 9·02 ,, |

Difference 0·04 c.c.

*Experiment No.* 4.—About 2 gms. of a dark rosin taken.

| | Burette reading. | Corrected reading. | Equivalent in HCl sol. |
|---|---|---|---|
| NaOH used | 13·48 c.c. | 13·47 c.c. | 8·38 c.c. |
| HCl ,, | 22 to 30·4 ,, | 8·39 ,, | 8·39 ,, |

Difference 0.01 c.c.

*Experiment No.* 5.—About 2·5 gms. of fatty acids from bleached soap from cotton-seed stock.

| | Burette reading. | Corrected reading. | Equivalent in HCl sol. |
|---|---|---|---|
| NaOH used | 17·39 c.c. | 17·40 c.c. | 10·82 c.c. |
| HCl ,, | 10·93 ,, | 10·86 ,, | 10·86 ,, |

Difference 0·04 c.c.

*Experiment No.* 6.—Fatty acids from a brown cotton-seed giving as dark an alcoholic solution as is usually met with.

| | Burette reading. | Corrected reading. | Equivalent in HCl sol. |
|---|---|---|---|
| NaOH used | 24·81 c.c. | 24·82 c.c. | 15·44 c.c. |
| HCl ,, | 15·50 ,, | 15·43 ,, | 15·43 ,, |

Difference 0·01 c.c.

The exact amount of soda was found.

This result is particularly satisfactory as the alcoholic solution quite a strong brown colour, and masks the indication with ph phthaleïn to some extent. The end point with lacmoid was deci and the marked change in the appearance of the liquid easily re nised. It was not the bright, clear red as with a colourless solution, but the decided change in colour of tint marked the reaction clearly.

*Experiment No.* 7.—Some of the same lot of fatty acids used in 6 was taken and made into soap as usual, and then a known amou sodium carbonate added by putting in a measured quantity of solut

| | Burette reading. | Corrected reading. | Equivalent in HCl sol. |
|---|---|---|---|
| NaOH used | 19·40 c.c. | 19·42 c.c. | 12·08 c.c. |
| | (This saponifies the fatty acids.) | | |
| HCl used | 12·30 c.c. | 12·23 c.c. | 12·23 c.c. |
| | (More than enough to decompose the sodium carbonate.) | | |

The solution was boiled about ten minutes (best done in an Erlenm flask) to expel all carbon dioxide, and then the alkali restored to fatty acids by sodium hydroxide solution.

| | Burette reading. | Corrected reading. | Equivalent in HCl sol. |
|---|---|---|---|
| NaOH used | 19·42 to 22·22 c.c. | 2·80 c.c. | 1·74 c.c. |
| HCl ,, | | 12·23 minus 1·74 c.c. | 10·49 c.c. |
| The sodium carbonate added was equivalent to | | | 10·46 c.c. |

Difference, 0·03 c.c.

The soda combined as soap was next determined.

| | Burette reading. | Corrected reading. | Equivalent in NaOH sol. |
|---|---|---|---|
| HCl used | 12·20 c.c. | 12·13 c.c. | 12·08 c.c. |

Difference, 0·05 c.c.

These results are about as good as could be desired.

*Experiment No.* 8.—Determination of soda combined as soap commercial sample whose approximate composition was known. taken, 5·7373 gms. Dissolved in large volume of neutral alcohol added some phenol-phthaleïn as indicator. There was no alk reaction on boiling (this is necessary to decompose any bicarb which would give us indication with phenol-phthaleïn), and so ca and carbonate or bicarbonate must be absent. Added blue lac solution and proceeded with the titration in the boiling hot solu (The indication appears better in a hot solution.)

| | Burette reading. | Corrected reading. |
|---|---|---|
| HCl used | 12·14 c.c. | 12·07 c.c. |

Equivalent to 0·37834 gms. of soda = 6·59% of the soap.

To check this result 5·494 gms. of the soap were ignited in a plati dish and the residue of sodium carbonate titrated.

| | Burette reading. | Corrected reading. |
|---|---|---|
| $H_2SO_4$ | 11·63 c.c. | 11·60 c.c. |

Equivalent to 0·36311 gms. of soda = 6·61% of the soap.

Result by direct titration 6·59% of soda.

,, ignition and titration 6·61% ,,

Difference, 0·02%—a close check.

In conclusion, I would say that while this process may not be us all cases, it will be found of great convenience in many.

## THE ANALYSIS OF ARTIFICIAL COLOURIN MATTERS.

By Louis Joseph Matos, M.E.

It is proposed to detail in the present paper the methods followe the laboratory of a large textile establishment, for the examin of the artificial colouring matters. As is well known, very l quantities of these colours are imported into the United States, eventually find their way, through sales agents or otherwise, to the sumers, very few of the latter buying directly from the manufact These colours are produced at the manufactory, ordinarily in crysta form, some, however, being obtained in crusts or cakes, and o still, in the form of flocculent precipitates; except in very few insta are the products put upon the market in the condition that they

* Being the excess used.
† Due to the sodium carbonate.

: the works. They are mostly ground to a fine powder and ı varying quantities of inert substances, such as anhydrous sul- da, sulphate of magnesia, chloride of sodium ; in some cases, , starches of various kinds, flour, dextrin, etc. The thought be entertained that these substances are adulterants in the ense ; they are added for the purpose of *diluting* the intense ch the factory product possesses, for if such was not done, it ery difficult for a dyer to judge the amount of dye he requires a certain desired effect. Different coal-tar colours require nounts of diluents ; some are mixed with twenty-five or fifty and in several instances the commercial dye contains only ten f real colouring matter. Starches, in the dilution of this class play also a secondary part ; it is well known that many of uring matters, notably, some of the alkali salts, are extremely it, and to them is added the starch, which acts as an absorbent , and tends to keep the dye dry and in a powder, acting in manner as when it is added to a baking powder, preventing When these substances are added in definite proportions, and ve purposes, they cannot be looked upon as true adulterants, their percentage does not sensibly vary in succeeding lots of sed, they ought to be passed. True adulterants have been n the form of sand, iron-filings, plaster, etc., but only in rare

mist of a textile establishment ought to be independent of n so far as relates to the application of colours upon fabrics, ould be thoroughly familiar with the general methods of d what is very important, the compatibility of colours. cases the dyer uses his own judgment in the mixing of colours, with the result that the goods are streaky, spotted, ather than acknowledge that the fault is due to his lack of of the properties of the dyes used, condemns the colours r tries again with another set. The young textile chemist nd too much time in determining by actual laboratory work, l quantities of material and fabric, and under varying con- e compatibility of colours, and also the general capabilities our.

oratory is provided with a large number of four ounce bottles samples," and when new lots of dyes come in, the cans are d about three or four ounces of substance are removed from fully but rapidly mixed, and the sample bottle filled. This n average sample, and is labelled :

*Name of Dye* .....

*Received from* .....

*Date*..... *Lab. No.* .....

*Remark* .....

*nation of Moisture.*—For this, one to three gms. of the dye d out in a tared porcelain dish, about two inches in diameter, l at a temperature of 100° C. to 105° C. in an air bath ; the made of heavy copper, with a double bottom, and is large accommodate from 12 to 18 dishes. The dishes are allowed l weighed, heated and weighed again, or until the weight is The loss is reported as moisture. During the drying it is enient to place over the dishes circular pieces of plain white l note from time to time the volatility of the colour.

*e Matter.*—The contents of the dish from the moisture deter- re taken and dissolved in a little hot water, transferred to a t-sized beaker, diluted with water, allowed to stand for canted through a *small* tared filter, finally bringing the sedi- and washing until no colour remains. Dry as usual and n dissolving the dye for this determination note particularly of dextrine, which will be apparent if that substance is

*e of Sodium.*—As many coal-tar colours contain chlorine in on, the direct addition of nitrate of silver is inadmissible. letermination of salt, an indirect method gives very good A weighed quantity of the dye (about two grams.) is ignited ious porcelain crucible, the ash heated with boiling water, m insoluble matter, nitric acid added, and the precipitation with in the usual manner. The use of a large crucible for n is necessary from the fact that a large number of the tar ell up to many times the original volume upon the application The precipitate is filtered, washed, dried, etc., and from the ound, the amount of salt is calculated. In some cases the obtained good results with the following method : A known the dye is dissolved in water, sulphuric acid added an the colour removed from the solution by the repeated agitation with ether in a separatory funnel. The chlorine is precipitated in the usual manner from the colourless aqueous solution remaining.

*Sulphate of Soda.*—This is always determined from the amount of barium sulphate obtained by ordinary precipitation from a hydrochloric acid solution In the event of the dye being a sulphonated product, it is necessary to precipitate with barium chloride in hot solution, in which case barium sulphate and barium sulphonate are thrown down together, filter, wash well with water, and while on the filter, treat with a solution of ammonium carbonate. This converts the barium sulphonate to carbonate, and is easily removed by the addition of dilute hydrochloric acid. The residue, if any, will be the sulphate. Wash, dry and ignite.

*Sulphate of Magnesia.*—Whenever magnesia is found in a dye, upon qualitative examination, adulteration is assured in the sense previously mentioned, because magnesia is never a chemical constituent of tar colours. It is estimated by direct determination in the ash, by dissolving in dilute hydrochloric acid, filtering, and to the filtrate adding ammonium chloride and hydroxide to perceptible odour, followed with sodium ammonium phosphate, and allowing to stand. The precipitate is weighed as magnesium pyrophosphate ($Mg_2P_2O_7$).

Dye-stuffs containing sulphate of magnesia do not mix well with some dyes which are used for printing goods to be subjected to the steaming process for fixing colours.

*Carbonates.*—The safest way to determine these substances is to use a carbonic acid apparatus. The form the writer has always found most convenient is Dr. Wetherill's ; whatever form is used, it should be light in weight.

*Dextrin.*—If its presence is betrayed as previously mentioned, weigh out two to four grms. of the dye in a small tared beaker with a short rod, dissolve in a small volume of water, and add a small quantity of absolute alcohol, when the dextrin will be precipitated and tenaceously adhere to side of the beaker and rod, allow to stand awhile, pour out carefully, wash with alcohol several times, dry and weigh. Any insoluble matter present will be enclosed with the precipitated dextrin ; the weight of the insoluble matter found in the first instance, must be subtracted from the combined weight in this case, to obtain the true weight of the dextrin.

*Starch.*—This substance is insoluble, and by weighing a quantity of the dye, dissolving in water, starch will remain with other insoluble matter, by filtering, washing, drying and weighing, the total insoluble matter is obtained, and by igniting this dried residue, and weighing, the combustible part can be reported as starch or flour, of course, based upon a microscopic examination of the sediment obtained by allowing some of the dissolved dye to stand in a conical test-glass. Recourse should always be had to the use of the solution of iodine, and iodide of potassium when testing, microscopically for starch.

*Sugar.*—Sugar is occasionally met with in crystalline dyes only. It can be estimated in the same manner as for dextrin, with fair results when rapidity is desired, or accurately, by precipitating the colouring matter from a weighed quantity of dye, with basic lead acetate, and polarising, or by inversion and titration with Fehling's solution.

The foregoing was a paper read before the chemical section of the Franklin Institute.

## TIPS FOR TRADERS.

A GENTLEMAN who has travelled very extensively through the districts of Bolivia, Peru and Ecuador, in relating his experiences calls attention to the demand which exists in those parts for certain articles, for instance :—

ANILINE DYES have an enormous demand in every village of Peru and Bolivia.

MERCURY is used in the mines of Peru, etc., in very large quantities.

LABORATORY reagents, testubes, retorts, glass beakers, crucibles and assaying ovens are likewise much needed.

PARAFFIN and stearine candles are largely consumed.

ALCOHOL is used for cooking, heating, and dietetic purposes enormous quantities

There is an opening for the introduction of corrugated iron for roofing purposes.

There are many alterations in the customs regulations abroad from time to time, which it is as well for those trading in chemicals, paints, oils, and raw materials to be acquainted with. The following are the principal recent tariff changes.

In the United States of America, "Neutraline," which is obtained from the distillation of paraffin, ozokerite and some other mineral substance, and has the appearance of a highly refined oil, is now held dutiable at 25 per cent. *ad valorem* and is not duty free under paraffin.

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Chrome Green, or sesquioxide of chromium, is dutiable at 4½ cents. per pound.

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Crocus, obtained from burning pyrites, has a levied duty of 25 per cent. as a colour.

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White Paint containing zinc but no lead, ground in oil, has a duty of 1¾ cents per pound.

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Ammonium Hydrate for domestic purposes when exported in metallic cylinders is not entitled to draw back as it is not material used in the manufacture of ammonia.

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Chemical and physical apparatus such as thermometers, densimeters, etc., are admitted into Greece free of duty.

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India-rubber and gutta-percha, whether raw or refined, likewise rubber pipes, bars, bands and plates, mixed with other materials or not, are allowed to enter Greece free of duty.

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POSTAL CHANGES.

A new 4½d. stamp available for letters, telegrams, and especially parcels post, can now be obtained at all post offices in the United Kingdom.

The parcels and samples post with Greece has been suspended.

# Official Memoranda.

*(From the Board of Trade Journal.)*

## THE PETROLEUM INDUSTRY IN RUSSIA.

The *Journal de St. Petersbourg* says that one of the questions now occupying the attention of the press in Russia is the crisis which has supervened in the petroleum industry of that country.

In 1891 there were at Baku 77 companies for the extraction of naphtha. The production was 288,500,000 pouds (poud = 36 lbs. avoirdupois), extracted with the aid of 6,000 permanent workmen, without counting day labourers.

Comparing the results of last year with those of the preceding year, it is remarked that in 1891 there were obtained 48,000,000 pouds more naphtha than in 1890, which is equivalent to an increase of 21 per cent. This increased yield does not arise from the increase in the natural wealth of the soil, but from the large number of new wells which have been opened at great expense.

Certain fissures correspond to springs so rich in naphtha that the liquid bursts out from the soil. But this is only exceptional, and in the majority of cases recourse is obliged to be had to mechanical means to extract it from the fissures. The number of naphtha fountains diminishes each year; in 1887 they formed 42 per cent. of the total production; in 1888 this figure was reduced to 40 per cent. and it fell to 22 per cent. in the course of the two following years. In 1891 the fountains only gave 39,000,000 pouds, or 14 per cent. of the general total.

Although this considerable diminution in the yield of the fountains indicates that the extraction of naphtha will meet with greater difficulties, the *Revue* (a report issued by the Association of Russian Naphtha Producers) looks upon this phenomenon with satisfaction for, thanks to it, a certain equilibrium in the extraction of naphtha may be hoped for. At present the annual production of the wells varies to the degree that the results of some often exceed 50 and 60 times the quantity of naphtha extracted in the adjacent wells, and this immense difference in the natural conditions of production generally acquires some significance in the years of over-production, as was the case at Baku last year. In these conditions there is but little question of regulating the production by the aid of an agreement between the owners of the springs. At the end of 1891, for example, prices fell to 1½ kopecks per poud of naphtha, that is to say to a ra e less than the average cost of extraction, and notwithstanding this certain producers having realised large profits owing to the exceptional richness of their wells.

The *Revue* mentioned above divides the producers of naphtha into several groups: the first, which it calls "the permanent beneficiaries of naphtha production," possess the best lands, where each new well yields two or three million pouds per annum. The latter do not think of extending their operations, being contented with what few million pouds they get for almost nothing (with the exception of one kopeck per poud). In proximity to these large companies some small producers, having accidentally discovered a rich fountain or a naphtha well, come and establish themselves. Up to 30 per cent. of the total supp through the hands of these permanent or temporary beneficiar

The second group, which forms the business centre, consist large houses who obtain 50 per cent. of the total naphtha. Be the dimensions of their production, even the discovery of new has no influence on the prices of production, which falls but li two kopecks per poud.

The worst conditions are those of the third group of opera have not discovered wells sufficiently rich in naphtha.

Prices have undergone marked fluctuations during the last By reason of a large diminution in production, prices rose co in the summer of 1890 and reached eight or nine kopecks per the following autumn a reaction set in and the prices were r four and five kopecks towards the end of the year. The follo this tendency became more marked so that the average price c in 1891 was 2½ kopecks. Notwithstanding the evidence of duction, digging operations, far from diminishing, were largely in 1891.

In 1889, 6,500 sagenes (sagene = 6 feet) were dug, in 189 sagenes, and in 1891, 20,000 sagenes. This activity was ke July, 1891, after which it somewhat subsided. The expens in connection with these works last year are estimated at fou of roubles. Such a considerable expenditure can only re critical the position of several companies, in presence of the in prices.

Under the influence of the depreciation of naphtha and pet general results for 1891 have been very insufficient in the district of Baku. The average profits have sufficed neither interest nor to cover expenses. Taking into consideration th equal distribution of the losses between the manufacturers, it i a number of the latter have suffered very severely.

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## MINING AND METALLURGICAL PRODUCTIC AUSTRIA IN 1891.

The following particulars, based upon the report of th Ministry of Agriculture, are extracted from the *Handels Mu*

The total value of the productions of mining and metallurg after deduction of the value of ores sent for smelting, was florins (about £7,752,000.), the value of the mining prod 73,475,532 florins (about £6,123,000.), and that of the products 33,776,409 gulden (about £2,815,000.).

There were 114,103 miners engaged in the mines. Of th worked in the coal mines, 42,924 in obtaining lignite, 5,506 mines, 5,347 in the silver mines, 3,376 in lead mines, and 1, 1,237, 885, and 1,292 miners were respectively engaged in for obtaining quicksilver ore, graphite, zinc ore, copper ore, ores.

There were 12,668 men employed in smelting operations.

The following figures show the output of the various minin in Austria in 1891 (in metric tons of 2,204 lbs.), the cor figures for the preceding year being in each case shown in gold ore, 440 t. (1,547 t.); silver ore, 14,538 t. (14,494 silver ore. 70,633 t. (70,730 t.); copper ore, 9,318 t. (7,50 ore, 1,231,248 t. (1,361,548 t.); lead ore, 13,361 t. (11,27 ore, 28,828 t. (32,642 t.); tin ore, 720 t. (569 t.); bis 1,083 t. (793 t.); antimony ore, 334 t. (770 t.); sulphur o (5,422 t.); alum and vitriol shale, 34,394 t. (58,838 t.); ore, 5,279 t. (8,007 t.); graphite, 21,346 t. (23,728 t. 16,183,076 t. (15,329,056 t.); and coals, 9,192,885 t. (8,931

The following figures show the production of the m establishments (in metric tons of 2,204 lbs.):

Pig iron. 617,145 t. (666,273 t.); lead, 7,583 t. (8,297 1,033 t. (992 t.); zinc, 5,006 t. (5,486 t.); tin, 56 t. (50 silver, 570 t. (542 t.); silver, 36,037 t. (35,863 t.); sulp 12,268 t. (11,334 t.); copperas, 198 t. (438 t.); alum, 1,1 t.); mineral dyes, 838 t. (778 t.); and sulphur, 45 t. (37 t.).

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## THE CULTIVATION OF THE SUNFLOWER INDUSTRIAL PURPOSES.

In discussing the question as to why the sunflower is not c India, the Calcutta *Englishman* for the 23rd August say deserving of the attention of the Agricultural Department there are many parts of the country which seem to be well the purpose. The correspondence regarding the famine has brought to light the fact that an important industry sprung up in that country in connection with the new From the seeds of the plant is expressed a palatable oil purposes, while the residuum makes a capital fodder fo which there is an extensive demand in Great Britain, Germany, and Sweden. The stalks make a splendid fir shells of the seed are useful for heating purposes; and eve of the sunflower, which are rich in potassium, are valued

ıltivation of the plant in Russia on a commercial basis was only 50 years ago in the province of Voronesh, but it has spread to ıer provinces in the Volga basin which have recently been the of so much distress. The plant is now a prominent product in ıole of South-East Russia, and its cultivation is spreading. A e of black mould and sand, on low and sheltered lands, is the ıil for the plant, which thrives best in low lands near a river, it can get plenty of warmth and moisture. There is, however, erable difference of opinion as to the best method of cultivation. Russian farmers are convinced that it grows best after wheat and hile others hold that it should be sown after oats or clover, or ıe land has lain fallow for a couple of years. The proper season ving in Russia is early spring, sowing in rows giving the best . The planting and harvesting varies with the locality and the ter of the soil, but the crop generally ripens between August and ıber; and one advantage of sunflower farming is that it does not t the soil. On the contrary, it has repeatedly been found that and oats sown after sunflower have yielded better crops than ıown after other plants.

# Our Foreign Trade.

*(Compiled for the* JOURNAL *from Official Sources.)*

E following is a monthly review of the foreign trade of the Jnited Kingdom in chemical and allied products, with the ıal foreign markets; giving the amount of British manufactures ed by foreign countries, and the goods exported by them to the . Kingdom :—

GERMANY.

ırding to the returns of the Government Statistical Department ıign Trade for the month of July, 1892, the amounts (expressed kilos.) of the various selected articles undermentioned were as :—

| Class. | Imports. | Exports. |
|---|---|---|
| | 100 kil. | 100 kil. |
| and cement | 3,423,692 | 3,299,952 |
| ıtable oils, fats, etc. | 400,541 | 57,198 |
| ır and paper goods | 14,265 | 136,497 |
| ıleum | 704,835 | 4,623 |
| and other fuel | 10,043,150 | 90,063,089 |
| pitch, etc. | 116,508 | 55,620 |

total weight of the exports and imports for July shows an e as compared with the same month in 1891. The total imports ı seven months, January to July, show an increase, while the ıports for the seven months were 267,628,700 kilos. less than in ıe period of 1891.

AUSTRIA-HUNGARY.

following are the returns of the *Statische Ubersicht* for the first ıonths of 1892 (January to July). In the undermentioned imports tem, with the exception of "Chemical Substances," again show rease, while in the exports, gums and resins, dye and tannin ıre the only two items which show an increase as compared with ıe period in 1891. The total imports and exports as compared ıe corresponding period of last year show a decrease in both

| Class. | Imports. | Exports. |
|---|---|---|
| | Metric Centners. | Metric Centners. |
| l oil, etc. | 188,719 | 2,962 |
| ırals | 2,431,207 | 4,386,834 |
| and tanning stuffs | 285,306 | 431,698 |
| ıs and resins | 221,719 | 86,022 |
| ıral oils, etc. | 810,040 | 12,992 |
| nical substances | 445,520 | 162,051 |
| nical products | 39,894 | 51,594 |

A Metric Centner is about 94 lbs. Avoirdupois.

ITALY.

following are the returns for the first eight months of 1892, y to August :—

| Class. | Imports. | Exports. |
|---|---|---|
| | Lire. | Lire. |
| Chemicals, medicines, etc. | 26,212,554 | 27,477,874 |
| Colours, paints, and dyes | 16,588,103 | 6,128,436 |
| Minerals and metals | 75,746,009 | 26,423,514 |

A Lire is equivalent to 9½d. nearly.

In the imports, the only increase as compared with the same period in 1891, is in colours, the other two items having decreased. In the exports, however, all three of the above mentioned items show a distinct increase. In regard to total imports there has been a decrease, while there has likewise been a decrease in the total exports.

INDIA.

The following is a *resumé* of the official returns published by order of the Governor-General in Council, and represents the imports of foreign merchandise into India, and the exports of Indian manufacture and produce, for the month of June, 1892 :—

*Imports:*

| Class. | Quantities. | |
|---|---|---|
| Salt | tons. | 24,418 |
| Quicksilver | lbs. | 41,250 |
| Alum | cwts. | 11,396 |
| Arsenic | cwts. | 426 |
| Sulphur | cwts. | 6,852 |
| Quinine | lbs. | 2,803 |
| Aniline and alizarine dyes | oz. | 5,190,320 |
| Mineral oil | galls. | 4,157,500 |
| Linseed oil | galls. | 17,649 |
| Gums and resins | cwts. | 3,007 |
| Manures | tons. | 1 |
| Pitch, tar and dammer | cwts. | 7,487 |
| Dynamite and other explosives | cwts. | 670 |
| Candles | lbs. | 304,929 |
| Paints and colours | cwts. | 7,619 |
| Soap, all kinds | cwts. | 4,384 |

*Exports:*

| Class. | Quantities. | |
|---|---|---|
| Cinchona bark | lbs. | 14,470 |
| Cutch | cwts. | 21,429 |
| Indigo | cwts. | 2,507 |
| Myrabolams | cwts. | 35,070 |
| Turmeric | cwts. | 3,541 |
| Castor oil | galls. | 160,397 |
| Cocoanut oil | ,, | 799 |
| Borax | cwts. | 658 |
| Caoutchouc | ,, | 1,532 |
| Mica | ,, | 147 |
| Saltpetre | ,, | 39,972 |
| Shellac | ,, | 7,000 |
| Oil cake | ,, | 33,142 |
| Soap | ,, | 980 |

In the above mentioned, out of the sum total for each item, the following quantities were either shipped from, or sent to the U.K. :—

*Imports.*—Of salt, 18,811 tons were sent from the United Kingdom and 1,471 tons from Germany; quicksilver, 39,375 lbs. were sent from the United Kingdom. Petroleum, all petroleum which has its flashing point at or above 200° F., and is proved to the satisfaction of the Customs Collector to be intended to be used exclusively for the batching of jute or other fibre, or for lubricating purposes is *free of duty*. Out of the 3,007 cwts. gums and resin 1,432 cwts. were resin. Of paints and colours, 4,645 cwts were sent from the United Kingdom.

*Exports.*—Of cutch, 4,951 cwts. were sent to the United Kingdom; of indigo, 970 cwts.; myrabolams, 22,361 cwts.; turmeric, 163 cwts.; castor oil, 93,088 gallons; of cocoanut oil, 109 gallons; of caoutchouc, 1,224 cwts.; saltpetre, 21,359 cwts. to the U.K., and 4,897 cwts. to U.S.A.; of shellac, 4,323 cwts. were sent to the U.K., 2,030 cwts. to the U.S.A., France nil, and 647 cwts. to other countries.

The total value of the imports for June show a decrease as compared with the same month in 1891. The total exports also show a decrease. The comparison of the total value of exports and imports during the three months, April to June, 1892, with that period in 1891, show likewise a decrease in both cases.

# NOTICES.

## LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of
THE CHEMICAL TRADE JOURNAL
From
MR. JOHN HEYWOOD,
2, Amen Corner,
Paternoster Row, E.C.,
On usual trade terms.

## FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed* Money Order is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country

## *ANSWERS TO CORRESPONDENTS.*

B.—We should advise you to try the peroxide of soda now made by the Aluminium Co., Oldbury, it would be more likely to suit your purpose, and can be made into hydrogen peroxide at will. We are doubtful as to the exact nature of the operation you wish to perform, but as hydrogen peroxide is usually acid, we do not think it would be altogether suited to your purpose.

B. and S. (New York).—We shall be pleased to hear further from you.

S. Bros.—It has been forwarded.

W. A. N.—We are still awaiting your reply.

F. L.—Do you wish your journals to be sent in future to No. 188, Malden Road? Please state.

V. and Sons.—Book returned safely for which we thank you.

W. F. (Vienna).—We are obliged to you for the information.

A. S. H.—The change has been duly noted.

A. Co.—We have referred to the matter this week, and shall do so again by and by.

W. N.—Pamphlets to hand. We thank you for your kindness in sending same.

# Trade Notes.

Mineral Manure Works.—In the province of Huelva works for establishing a mineral manure factory are being proceeded with.

Personal.—Mr. W. F. Affleck has been appointed sole agent for Manchester and Liverpool district for the sale of galvanized sheets, etc., manufactured by Messrs. Walker Bros., of Walsall. He is also agent for the Oriental Tube Co., of West Bromwich. Mr. Affleck's place of business is 6, Rumford-place, Liverpool.

The Bolton Iron Trade.—The trade at the local iron works of Bolton is worse now than it has been during the last 50 years. At the Bolton Iron and Steel Company's works more than one-half of the men usually employed have been stopped. There seems little chance of any improvement.

Recent Trade Marks.—"D. W. G." on diamond-shaped design; for all kinds of toilet soap. By D. and W. Gibbs, City Soapworks, Finsbury, E.C. 164,206. "Mother Shipton and Tandem"; for perfumery and toilet articles. By Goodwin Bros., Ordsall-lane Soap Works, Manchester. 166,724, 166,725.

Patent Blacking.—A patent has been taken out by F. Ragon, of Paris, for the preparation of blacking, which consists of a composition of tallow, pine resin, carbonate of soda, and water. To this is added any suitable colouring matter. The mixture may also be used as a soap, presumably without the addition of any black colouring matter.

Compulsory Smoke Prevention.—The civil authorities of Pittsurgh have passed an ordinance requiring the owners of stationary oilers in the East End to give up the use of bituminous coal, erect moke consumers, or pay a fine of from £2. to £10. every time they are reported as causing a nuisance. As a consequenee nearly all the owners of boilers have put in smoke consumers.

River Pollution in Derbyshire.—At a meeting of the Derbyshire County Council, on Friday last week, the Public Health Committee were authorised to take legal proceedings against the Corporations of Derby and Burton-on-Trent to compel them to cease pollution of the rivers Derwent and Trent respectively. Burton has a sewage farm, but it is alleged that the sewage runs from it into the Trent. The Derby sewage is turned direct into the Derwent.

Padiham and their Sewage.—On Monday last a deputation from the Padiham Highway and Sewage Committee waited on a committee of the Burnley Corporation on the question of the proposed scheme for treating the Padiham sewage at the Burnley Corporation new sewage works at Altham. There was an exchange of views between the representatives of the two authorities, and every possibility of an arrangement being agreed upon for the disposal of the Padiham sewage and for putting an end to Padiham's share of the pollution of the Calder.

The Jaffa-Jerusalem Railway.—Jerusalem seems looking up in the industrial world. Not long since we made reference to the growth of the soap industry there, and now the railway connecting this city with the coast has been completed and opened for passenger traffic. We frequently hear people told to go to Jericho, and those who do as they are requested will, when *en route*, be able now to travel *viâ* the Jaffa and Jerusalem Railway. Possibly some day it may become the J. J. and J. Ry. for the special convenience of those who wish to go farther east.

Castleton Sewage Scheme.—The chairman of the Castleton Local Board visited London on the 23rd ult., accompanied by the clerk and the engineer, to submit to the Local Government Board plans of the proposed sewage scheme for the district The proposal, it may be remembered, is to convey the sewage of one part of the district to a site near the canal at Trub Smithy, and that of the other part of the district to some site to be secured at Sudden; the sewage to be treated at each outfall. Plans of the sewage purification works have been prepared by Mr. Diggle, borough engineer to the Corporation of Heywood, and are designed for carrying out the International process of purification by means of ferozone and filtration through polarite beds.

Sodium Peroxide.—We published in our columns about three weeks ago an article on sodium peroxide, in which mention was made of the fact that the Aluminiun Co., of Oldbury, were also making this article. We are pleased to state that we have since learnt that the Aluminium Co. were actually the first firm to make sodium peroxide, and have patented the methods employed, so that the compound recently introduced into Germany originally came from them. The firm are at present selling sodium peroxide at 1s. 6d. per pound, and having seen samples of the same, we may have some further remarks to make as to the uses of the article at a future date. We also learn that Messrs. Konigswarter and Ebell, of Linden, nr. Hanover, are the sole agents for sodium peroxide on the Continent.

Houses of Parliament.—Our contemporary, *Industries* is now preparing a comprehensive description of the Heating, Lighting, Ventilating, and Sewage appointments of the Houses of Parliament, for a Special Number, which will be published on the 28th inst. The description will, we understand, be very complete, and its accuracy is vouched for by the fact that every assistance has been given to our contemporary by the Chief Engineer of the Houses of Parliament, and that the account has been prepared by the permission of the Chief Commissioner of Works in the late Government. As these historic buildings are of interest, not only to all English-speaking readers, but to all lovers of liberty, there can be little doubt that the demand for this Special Number of *Industries* will be a large one.

The Rio Tinto Co., Ltd.—The directors of the Rio Tinto Co. (Limited) state that the deliveries of pyrites in the United Kingdom, Germany, and the United States promise to attain 430,000 tons, which is practically the same as the deliveries of last year. The present contract under which pyrites sales are made to German buyers expires this year, and a contract to supply them for a further period of three years (1893, 1894, and 1895) has been entered into. The pyrites contracts for this country for 1894, 1895, and 1896 are now being settled. The contracts with buyers in the United States are working satisfactorily. The company have joined the combination between the European and American copper producers, which has for its object the regulation of the supply of copper. The arrangement come to took effect on July 1st last, and it is confidently expected that the desired result will be obtained. The directors have declared an interim dividend on the share capital on account of the year's profits of 7s. per share, tax free, payable on November 17th.

St. Helens Corporation and their Tar.—The question of distilling their own tar was recently before the Gas Committee of the St. Helens Town Council, and was favourably received. About 1,500 tons of tar are produced at the gas works per annum. It has been estimated that this would yield a profit of £750. per year over what they would get by selling the tar at 10s. 3d. per ton, the highest price now offered. The distilling could easily be worked by a practical tar distiller in connection with the gas works, and they did

he cost of the plant was likely to exceed £2,000. Under stances, and with the probability that the price of tar would ver, the sub-committee recommended the committee to put and apparatus for the distillation of the tar produced at the l that the manager be instructed to prepare detailed plans cations, for the necessary works. The committee adopted nendations.

MINIUM VESSEL.—A steam launch made of aluminium in ts, including engine and screw, has just been finished by cher, Wyss and Co., of Zurich. It measures six metres in one metre 50 centrimetres in width, and is the first vessel nstructed of this metal, its weight being about 25 per cent. f it had been built of the lightest of any of the other possible

CONVEYOR PLANT.—The Linck-Bell Engineering Co., of lia, has contracted to put up a conveyor plant for handling or the Solway Process Co. The plant is designed to convey f powdered soda ash per day. When completed it will, it is the largest conveying plant in existence.

# Market Reports.

## REPORT ON MANURE MATERIAL.

out the week the market has been quiet without appreciable in values of either phosphates or ammoniacal material.

re sellers of 75/80% Florida phosphate rock at 8½d. per unit .K. in cargoes, but to induce business something less would accepted. C.i.f. Continent, the value is about 8¾d., Peace land pebble rock, 60%, may be had at 7d. per unit, and there of hot-air dried Bull River rock at 6½d. per unit, c.i.f. to other descriptions we do not hear of any important business.

e bone ash is difficult to sell, the value being about £3. 2s. 6d. ett Hamburg terms.

reported in cargoes of River Plate bones. For anything of £4. 5s. would be obtainable, but for large mixed cargoes d less would have to be taken.

re sellers of crushed Kurrachee bones at £4. ex quay Liver- that is probably nearest value of Bombay bone meal for early but for later shipment 2s. 6d more would have to be paid. nquiry for charring bones, and £4. ex quay Liverpool, may as nearest value of good clean parcels.

of soda remains very much as last reported. Spot is firm at for inferior, 8s. 6d. for good test, and 8s. 9d. for refined. es, ordinary test, are worth 8s. 4½d. per cwt., August- shipments 8s. 6d. to 8s. 9d. per cwt., October-November to 9s., the more distant shipments being very firmly held.

lood is more enquired for, and is now worth 8s. 6d. to 8s 9d. according to position of works. The value of rough River test, is about 8s. per unit, ex quay Liverpool. There is r kainit, but prices required by local agents, 40s. per ton, nett ilk, ex quay Liverpool, precludes busines. The quotation mburg, is 26s. 9d. per ton, in bulk; c i.f. Hull, 29s. 9d. per

## SCELLANEOUS CHEMICAL MARKET.

quietness has prevailed in the Chemical trade during the past there is no material change in prices. Bleaching powder at £7. 15s. for spot and £7. 5s. for 1893 contracts. Soda eely. Caustic, 48% $1\frac{9}{32}$d., and higher strengths *pro rata.* ia" Alkali, 58%, £5. 10s., in bags, rails, makers' works. da, dull. We quote 10 ton lots, 77%, £11. 15s. nett, Tyne; 2s. 6d.; 60%, £9.; cream 60%, £8. 15s., all rails Lanca- da crystals steady, at £2. 18s. bags, £3. 9s. casks or barrels. ells slowly at 32s. 6d. to 35s., rails. Chlorate of soda still at 8½d. Potash quiet at 7½d. Acetate of soda firm at ces. Lead salts neglected. Foreign white acetate remains o.b., 10 ton parcels; brown, £16. 10s. English white, at works. Nitrate, £20. Acetates of lime have a firmer or forward delivery; spot prices, however, are unchanged. ficult to move. White powdered arsenic in good demand at 6d. to £12. 10s. nett, Garston. Bichromates without Sulphate of copper in slightly better request at £14. 10s. to f.o.b. Sulphocyanides nearly unsaleable. Prices are— l.; ammonium, 7d. Carbolic acids keep fairly steady, crude prompt delivery. We quote crude, 70's, 1s. 7d. per gallon; d. per gallon—crystals, 39/40°, 5d. per lb.

## LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil: the firm tone is still maintained and sales of Lagos have been made at £22. 10s., Bonnin and Old Calabar £20. all transit. Olive is firm though the demand is small, and prices range from £36. to £41. per ton. Linseed is at present stationary, with a tendency to harden in price. Liverpool makes have experienced a steady demand at 19s. 6d. to 20s per cwt., in export casks. Cotton-seed: Liverpool refined at 18s. 6d. has been in good demand, American is quiet at 20s. to 24s. per cwt. Castor oil is stronger in tone. Good seconds Calcutta have been sold at $2\frac{7}{16}$d. and are steady thereat. First pressure French is unaltered at $2\frac{9}{16}$d. per lb. Tallow: owing to small supply the markets gave signs of advancing at the end of last week, but it is again quiet with North American at 24s. to 24s. 6d., and South American 27s. 6d. to 28s. per cwt. Resin: common has advanced to 3s. 10½d. per cwt., and continues very firm at that figure. Spirits of turpentine have hardened still further in price, and to-day's value is 22s. 6d. to 22s. 9d. per cwt, and are firm at that. Petroleum: American and Russian refined, remain unaltered.

COLOURS steady, without alteration. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s., medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20.

## THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron steady. Scotch warrants closed at 41s. 6½d. cash. Middlesborough and Hematite nominal. Copper steady: Chili bars, G.O.B.'s and G.M.B.'s closed at £45. 16s. 3d. cash, and £46. 6s. 3d. to £46. 13s. 9d. three months. Tin steady: Straits closed at £95. 2s. 6d. to £95. 12s. 6d. cash, and £95. 12s. 6d. to £96. 2s. 6d. three months. Australian, £95. 12s. 6d. cash. English ingots, £98. to £98. 10s. Lead, quiet but steady: Spanish, £10. 7s. 6d. English, £10. 12s. 6d. to £10. 15s. Silesian spelter: Ordinary, £18. 17s. 6d. to £18. 19s. Quicksilver: First hands, £6. 10s., second hands, £6. 9s. *Copper shares* dull: Cape, $1\frac{11}{16}$ to $1\frac{13}{16}$; Copiapo 2⅛ to 2⅜; Libiola, 2⅞ to 3; Mason and Barry, 3 to 3⅛; Rio Tinto, $15\frac{13}{16}$ to $15\frac{15}{16}$; Tharsis, $4\frac{11}{16}$ to $4\frac{13}{16}$; Namaqua, ⅝ to ¾; Panulcillo, ⅜ to ½.

WOLVERHAMPTON, WEDNESDAY. — To-day's negotiations opened at the quarterly meetings were in numerous instances successfully completed. Contracts were mostly for short deliveries alike in pig and manufactured iron. Prices, however, were maintained at 45s. for Northampton pigs, 46s. for Derbyshires, and 48s for Lincolns. Local pigs were 60s. for all mines, 45s. to 47s. medium, and 37s. 6d. common. Bars moved off at £8. best, £6. 10s. merchant sorts, and £5. 15s. common. Sheets, £7. 5s. to £7. 10s. doubles, and £8. lattens.

GLASGOW, WEDNESDAY.—Market dull; small business done in Scotch at 41s. 6d. and 41s. 6½d. cash, and 41s. 7½d., 41s. 7d,, and 41s. 7½d. one month; closing buyers 41s. 6d. cash, 41s. 7½d. one month, sellers ask ½d. more. Middlesborough idle and business nil. Closing: Buyers at 38s. 1½d. cash; sellers 38s. 3d. cash. Hematite closes with buyers at 48s. 4½d. cash and one month; sellers 3d. more.

## THE LIVERPOOL MINERAL MARKET.

On the whole the market continues firm. Manganese: Arrivals have considerably increased, but all practically goes into consumption, and prices are firm. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump) continues quiet. Raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand), in good demand; lump 20s., seconds 16s., and thirds 12s. French chalk: Arrivals are small, whilst the demand continues steady, and prices firm. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump, none offering; nuts, 70s. to 80s.; whilst finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.;

No. 3, 45s. Pumicestone quiet. Iron ore freely offered; prices easy; Bilbao, Irish, and Cumberland easier. Santander and manganiferous quiet. Emerystone: Best quality inquired for. No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal continue in good demand, and prices are firm. Chrome ore: There is more inquiry, and prices are firm. Antimony ore steady at £12., and metal £43. to £44. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. 10s. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese steady, and prices are unchanged. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) steady; finest quality 22s. to 23s.

## TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals practically remain unaltered, though bleaching powder may be said to be again cheaper, the price now quoted being from £7. 10s. to £7. 15s. per ton net.

Bleaching powder, softs, £7. 10s. to £7. 15s. per ton; hards, £7. 15s. to £8. per ton; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £4. 17s. 6d. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw. £3. per ton, 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per ton; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 7d. per lb. less 6%; pearl hardening, £3. 10s. per ton nett; pure white sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta crystals, £19. per ton; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; hydrate of barium, £11. per ton.

South Durham salt, 9s. 6d. to 10s. per ton f.o.b. Tees.

Coals: Demand for steam qualities is quiet, though for gas coals there is an increased inquiry. Prices are as under:—Best Northumbrian steam, 9s. 6d. per ton; small steam plentiful, at 3s. 6d. to 4s. per ton; gas coal in good demand, at 7s. 6d. to 8s. 6d.; coke firm, at 15s. to 16s. per ton.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

These have further abated in activity during the week, and the tendency of the market is to lower prices. Bleaching powder is now procurable at £7. 15s. Tyne delivery, and soda crystals, after being long stationary at £2. 17s. 6d., seem to have been bought at a half-crown less. There are no other changes in the common chemicals, but dulness is the rule with nearly the whole of them.

There is little that is new in the mineral oil section, and the outlook continues foreboding. Makers hoped that on the halfpenny being taken off the solid paraffins the candle-making factories would engage advance supplies freely, but the call upon these overgrown stocks has as yet been disappointingly moderate. A further fall is expected, and by some pronounced to be inevitable, the American makers being quite inclined that way, although professing to concur in the figure as recently readjusted here. Burning oils are active, but the prices are not very remunerative, and more cannot be got.

In sulphate of ammonia there is no stamina, and procurable value is again lower. For prompt Leith £10. has been done freely, and now some holders are taking £9. 18s. 9d.

Chief prices current are:—Soda crystals, £2. 15s. nett Tyne; alum in lump, £5. 10s., nett Glasgow; soda ash, unobtainable; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; refined alkali, unobtainable; bleaching powder, £7. 15s. nett Tyne; saltcake, 35s.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f Glasgow); bichromate of soda, 3¾d., nett, for Scotch and En deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of po 7¼d., less 5% Liverpool; nitrate of soda, 8s. 6d.; sulphat ammonia, £9. 18s. 9d. to £10. f.o.b. Leith; salammoniac, first second white, £35. and £33., less 2½% any port; sulphate of co £14. 7s. 6d. less 5% Liverpool; paraffin scale (hard), 2½d., and 2½d. per lb.; paraffin wax, 120°, semi-refined, 3d.; paraffin (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and according to kind, at works, for Scotch buyers (English sales ½d. to 1d. lower); ditto (lubricating), 865°, £3. to £3. 10s., £4. 10s. to £6., and 890/895°, £5 to £7. Week's imports of sugar at Greenock were 2,746 cwts.

## New Companies.

**Combination Starch Co., Ltd.**—CAPITAL £2,000. in share £1. each. This company is formed with a view to purchasing ce secrets connected with the manufacture of starch, and to carry on the business of laundry keepers, dyers and cleaners.

**F. Reddaway and Co., Ltd.**—CAPITAL £250,000. in £10. sh This company has been formed with a view to carrying on the bus of belting makers, hitherto carried on by F. R. Reddaway and Pendleton and elsewhere. The subscribers to the memorandu association are:—F. Reddaway, Birkdale, Southport, manufact J. Hacking, Henfield House, Clayton-le-Moors, manufacturer; W Martin, Adelaide Place, Dundee, manufacturer; E. S. G Manchester, merchant; R. Kerr, 23, Milton Place, Halifax, merch T. Jubb, Ewood Court, Mytholmroyd, merchant.

**Christopher Wood, Ltd.**—CAPITAL £100,000. in £50. sh This company has been formed with a view to the taking over going concern the business hitherto carried on under the sty C. Wood, bleach works, Brinscall, nr. Chorley, Lancashire, a carry on the business of bleachers, dyers, paper makers, brick, tile pipe manufacturers, makers of cement, vitriol, bleaching and dy material, chemicals, etc. The subscribers to the memorandun association are:—W. C. Wood, Brinscall Hall, Chorley, calico prin J. Wood, Wathnell Hall, Chorley, calico printer; R. J. Wood, B S.O., nr. Manchester, calico printer; C. Wood Jr., 9, Harriet-st Stretford, Manchester, salesman; A. E. Wood, Brinscall Hall, Cho mill manager; W. M. Wood, Brinscall Hall, Chorley, manager; J. Wood, The Vicarage, Heapey, nr. Chorley.

**Incorporated Agencies, Ltd.**—CAPITAL £10,000. in shares of each. This company has been formed with a view to establis agency for members of medical, veterinary, chemical, and other fessions, and to promote negotiations for partnerships, assist "locum tenens" and pupils for the veterinary, medical, chemica other professions. The subscribers to the memorandum of associ are:—L. V. Jones, 2, Bennet-street, St. James's, Bachelor of Medi A. E. Stainforth, 215, Piccadilly, W., gentleman; J. F. G. Crid 215, Piccadilly, W., solicitor; A. W. H. Allen, Constitutional Chiswick, club manager; W. Cousens, 34, Victoria-street, S secretary to public company; F. H. Cridland, 263, Strand, W accountant; H. C. Clements, 215, Piccadilly, W., gentleman.

## The Patent List.

*This list is compiled from Official sources in the Manchester Tech Laboratory, under the immediate supervision of George E. Davi Alfred R. Davis, who report professionally upon the value of Che Patents.*

### APPLICATIONS FOR LETTERS PATENT.

**Manufacture of Sodium.** W. Mills, 17,576. Oct. 3rd.
**Purifying Feed Water for Boilers.** J. B. Edmiston, 17,590. Oct. 3rd.
**Boring Coal and Other Minerals.** D. Collins, 17,617. Oct. 4th.
**Extracting Copper and Other Metals from Ore.** J. D. Filmour a Finlay, 17,619. Oct. 4th.
**Improved Retorts for Distillation of Oil from Shale.** J. A. Yeadon a Adgie, 17,644. Oct. 4th.
**Preparation of Re-agents for Working Gold and Silver Ores.** H. H. 17,661. Oct. 4th.
**Manufacture of Dye Stuffs.** H. E. Newton, 17,673. Oct. 4th.
**Manufacture of Anthraquinone Colouring Matters.** H. E. Newton, Oct. 4th.
**Purifying Iron and Steel from Sulphur.** E. H. Saniter, 17,692. Oct. 4
**Extracting Bismuth from Flue Dust of Copper Works.** J. W. Ky 17,694. Oct. 4th.
**Separating and Collecting Dust from Air.** A. M. Robinson, Oct. 5th.
**New Azo Colouring Matters and Process for Dyeing Therewith.** Newton, 17,770. Oct 5th.

**Coating Metal Plates with Tin, Terne, or other Alloy.** D. R. Jenkins, 17,773. Oct. 5th.
**Manufacture of Pigments.** M. N. D'Andria, 17,808. Oct. 6th.
**Decorative Plaques, &c.** E. Jumeau, 17,810. Oct. 6th.
**Disinfecting Cesspools and Utilising Disinfected Matter.** V. J. C. Boulengier, 17,815. Oct. 6th.
**Utilising Ammonia for Motor Engines.** W. Mather, 17,823. Oct 6th.
**Dehydrating Ammonia and other Volatile Vapours.** W. Mather, 17,824. Oct. 6th.
**Facilitating the Fusion of Mild Steel and other Refractory Metals.** H. Imray, 17,825. Oct. 6th.
**Pulverising Ores by Air Currents.** G Henoch and E. Maurice, Comte Exelman, 17,827. Oct. 6th.
**Electrolytical Production of Tubes, &c.** F. E. Elmore, 17,895. Oct. 7th.
**Improved Zinc, Lead, and Silver Ore Reducing Furnaces.** W. Smethurst, 17,908. Oct. 7th.
**Manufacture of Tin and Terne Plates.** W. F. Richards, 17,921. Oct 7th.
**Secondary Batteries.** F. King and E. Clark, 17,922. Oct. 7th.
**Distilling Mash for obtaining Fusel-oil and purified Alcohol.** R. Ilges, 17,927. Oct. 7th.
**Manufacture of Mineral Wool.** C. H. Hubbell, 17,928. Oct. 7th.
**Secondary Batteries.** J. Hirshfeld, W. Morison, A. P. Morison, and W. Wright, 17,930. Oct. 7th.
**Improved Battery Compound.** J. Hirshfeld, W. Morison, A. P. Morison and W. Wright, 17,931. Oct. 7th.
**Recovery of Tin from Tin Plate Scrap.** T. Twynam, 17,951. Oct. 8th.
**Manufacture of Illuminating Gas from Water and Fluid Hydrocarbons.** T. G. Springer, 17,978. Oct. 8th.

# Gazette Notices.

## PARTNERSHIPS DISSOLVED.

J. Pini, J. Roncoroni and L. Bonacina, under the name of Pini, Roncoroni and Bonacina, as paint oil and varnish manufacturers, under the name of John Skitt and Co., and as general merchants, under the style of J. Pini-y-Roncoroni Hermanos.

F. J. Payne and L Iffenthaler, under the firm of Payne and Co., Cullum St., E.C., general and chemical agents.

J. Lawes and J. Bierback under the style of James Lawes and Co., Birmingham, galvanisers and wire netting manufacturers.

J. J. Gray, Cults, Aberdeen, chemist and druggist.

S. D. Wills and H. T. Wills, under the style of Samuel Wills and Co., Bristol, paint colour and varnish manufacturers.

H. North, J. W. North, and J. H. North, under the style of Henry North and and Sons, dyers and sizers ; so far as regards H. North.

## BANKRUPTCY ACTS, 1883 and 1890.

### Adjudication.

Hill, Henry Mark, Heath Town, nr. Wolverhampton, brick manufacturer.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending October 8th.*

**Acetanilide—**
Holland, 10 pkgs. F. Boehm

**Acetate of Lime—**
U. States, 402 pkgs. H. Wallace & Co.
" 434 Johnson & Hooper

**Acetic Acid—**
Holland, 5 pkgs. A. & M. Zimmermann

**Acetone—**
Holland, 16 pkgs. A. & M. Zimmermann

**Alkali—**
France, 100 c. Arnati & Harrison

**Antimony—**
France, 3 t. B. & F. Wf. Co., Ltd.
Portugal, 50 J. Bamber
Sydney, 6 H. Bath & Son
Italy, 10 Beck & Pollitzer

**Asbestos—**
Italy, £137 British Asbestos Co.
Austria, 102 M. D. Co.

**Barytes—**
France, 48 cks. J. B. Orr & Co.
Holland, 4 Brougham Young
Germany, 19 J. Kitchin, Ld.
" 57 W. Fenton
Belgium, 20 P. Jantzen
Belgium, 11 Leach & Co.

**Caoutchouc—**
France, 11 c. Flageollet & Co.
Zanzibar, 43 L. & I. D. Jt. Co.
U. States, 15 Prop. Bull Wf.
" 2 J. Walker & Co.
E. Indies, 57 Hale & Son
Madagascar, 147 McKellar, Carr, & Co.
" 48 Proctor Bros.
" 13 Lewis & Peat
E. Indies, 9 Hale & Son
Madagascar, 9 Prop. Bull Wf.
France, 24 L. & I. D. Jt. Co.

**Castor Oil—**
Italy, 30 cs. Hodgkinsons & Co.
" 5 Hicks, Nash & Co.
" 5 G. S. N. Co.
France, 5 cks. P. Marshall
Belgium, 87 brls. Fuerst Bros.

**Caustic Potash—**
France, 12 c. Tennant, Sons, & Co.
Holland, 20 A. & M. Zimmermann

**Chemicals** (*otherwise undescribed.*)
Germany, £20 M. D. Co.
" 10 L. & I. D. Jt. Co.
" 10 pkgs. T. H. Lee
" 312 43 A. & M. Zimmermann
Holland, 90 "
Germany, 25 Becker & Ulrich
Holland, 11 A. Barsdorf

**Cream of Tartar—**
Italy, 4 pkgs. Italo-Brit. S. N. Co.
France, 16 B. & F. Wf. Co., Ltd.
" 5 M. Ashby, Ld.
" 5 W. C. Bacon & Co.
Spain, 3 "
" 8 A. Ruffer & Sons
" 2 Evans, Lescher, & Co.
" 5 Harvie, Lockie, & Co.
Holland, 15 Midgleton & Co.
France, 5 C. F. Gerhardt
" 5 F. J. Devon & Co.
Holland, 8 B. & F. Wf. Co., Ltd.

**Dyestuffs—**
**Aniline**
Italy, 12 pkgs. Kaltenbach & Co.
Holland, 1 L. C. & D. Rly.
" 7 Elkan & Co.
**Argols**
Italy, 104 pkgs. Thames S. T. & L. Co., Ltd.
**Cochineal**
Canaries, 7 pkgs. Swanston & Co.
**Cutch**
Rangoon, 200 pkgs. H. A. Litchfield & Co.
E. Indies, 7 Hale & Son
**Extracts**
France, 250 pkgs. B. & F. Wf. Co., Ltd.
" 74 Soundy & Sons
Belgium, 250 L. J. Levinstein & Sons
" 50 pkgs. Leach & Co.
France, 25 L. J. Levinstein & Sons
**Gambier**
Singapore, 483 pkgs. L. & I. D. Jt. Co.
" 212 Williams, Torrey, & Co., Ltd.
" 272 Beresford & Co.
" 420 T. J. & T. Powell
E. Indies, 86 Adamson, Gilfillan, & Co.
" 1,723 L. & I. D. Jt. Co.
**Indigo**
E. Indies, 4 chts. Parsons & Keith
" 11 T. H. Allan & Co.
" 82 L. & I. D. Jt. Co.
" 8 F. Huth & Co.
" 137 R. von Glehn & Sons
Holland, 2 Skilbeck Bros.
U. States, 27 Arbuthnot, Latham, & Co.
**Myrabolams**
E. Indies, 4,000 pkgs. A B. Curtis & Co.
" 334 L. & I. D. Jt. Co.
" 1,109 Finlay & Co.
**Saffron**
France, 1 pkg. G. W. Wheatley & Co.
**Sumac**
Italy, 125 pkgs. Italo-Brit. S. N. Co.
" 100 W. France & Co., Ltd.
" 100 H. Johnson & Sons

**Turmeric**
China, 300 pkgs. W. M. Smith & Sons

**Farina—**
Holland, 172 pkgs. R. G. Hall & Co.

**French Chalk—**
France, £20 Pronk, Davis, & Co.

**Glucose—**
France, 800 pkgs. 300 c. L. Norman & Co.
U. States, 125 1,690 c. L. Sutro & Co.
" 50 275 Prop. Chamblin.'s Wf.
" 500 500 Union L. Co., Ltd.
Germany, 14 46 J. Knill & Co.
France, 400 400 J. Barber & Co.
" 140 140 Barrett, Tagant, & Co.

**Iron Oxide—**
Austria, 17 cks. M. D. Co.

**Manganese—**
Japan, 51 t. J. Greig

**Magnesium—**
Germany, 1 pkg. Phillipps & Graves

**Manure—**
Brisbane, 14 t. Goad, Rigg, & Co.
France, 321 J. Burnett & Sons

**Methyl Alcohol—**
Italy, 1 ck. Lister & Biggs
Belgium, 2 dms. Stein Bros.

**Mica—**
U. States, £14 Knight & Morris
Sydney, 35 Anderson, Anderson, & Co.
E. Indies, 27 Williams, Torrey, & Field

**Ochre—**
U. States, 2 cs. Beck & Pollitzer
Holland, 16 pkgs. Phillipps & Graves
France, 58 cks. J. L. Lyon & Co.

**Painters' Colours—**
France, 15 pkgs. Flageollet & Co.
" 1 cs. G. W. Wheatley
Germany, 4 7 Phillipps & Graves
" 16 T. H. Lee
" 1 4 cks. L. & I. D. Jt. Co.
" 1 Haeffner, Hilpert, & Co.
U. States, 246 brls. Anglo American Oil Co.
Belgium, 18 T. Palmer
Holland, 6 Phillipps & Graves
France, 6 F. C. Smith
" 24 cks. Arnati & Harrison
U. States, 1 W. Bope & Co.

**Paraffin Wax—**
U. States, 100 brls. Mordaunt Bros.

**Phosphate Rock—**
France, 145 t. T. McCarnie & Co.

**Phosphoric Acid—**
Germany, 15 pkgs. Phillipps & Graves

**Pitch—**
France, 125 brls. C. B. Leighton

**Plumbago—**
Germany, 8 cks. T. H. Lee
" 18 Fellows, Morton, & Co.
Holland, 139 B. Gallaway
Ceylon, 51 brls. Beresford & Co.
" 400 E. Barber & Co.
Germany, 5 B. Gallaway
Ceylon, 357 pkgs. Prop. Sun Wf.

**Potash Salts—**
Holland, 8 pkgs. R. Morrison & Co.

**Potassium Carbonate—**
France, 40 c. J. A. Reed
" 100 E. W. Carling & Co.
Germany, 17 cks. Beresford & Co.
France, 100 L. & I. D. Jt. Co.

**Potassium Chloride—**
Germany, 20 pkgs. H. Lambert

**Potassium Oxalate—**
Holland, 2 pkgs. Pickford & Co.
Norway, 14 B. & F. Wf. Co., Ltd.

**Potassium Permanganate—**
Germany, 40 pkgs. Domeier & Co.
Holland, 30 F. Boehm
France, 11 Spies Bros. & Co.

**Potassium Sulphate—**
Germany, 254 pkgs. Bessler, Waechter, & Co.
" 4 Weatherley, Mead, & Co.
France, 20 F. W. Berk & Co., Ld.
Belgium, 67 "

**Pyrites—**
Italy, 24 t. Italo-Brit. S. N. Co.
Germany, 175 G. J. Steward
France, 8 Soundy & Sons

**Rosin—**
France, 5 brls. R. McAndrew & Co.
U. States, 1,200 H. Hill & Sons

**Rosin Oil—**
France, 100 cks. A. Brown & Co.

**Salicylates—**
Holland, 2 pkgs. R. Morrison & Co.

**Saltpetre—**
Germany, 7 cks. Craven & Co.
E. Indies, 2,599 bgs. Ralli Bros.
France, 20 200 H. R. Boyer
Germany, 72 P. Hecker & Co.
" 500 Anglo Contl. G. Wks.

**Sodium Acetate—**
France, 14 pkgs. W. Grose & Co.
" 28 H. Lorenz
" 800 T. Palmer
" 9 S. F. Waters & Co.
Belgium, 9 Leach & Co.

**Sodium Hyposulphite—**
Holland, 514 pkgs. 220 c. Beresford & Co.

**Stearine—**
Belgium, 90 bgs. H. Hill & Sons
France, 20 M. Harris & Co.
" 72 Beresford & Co.

**Sulphur—**
Holland, 25 t. Ekman Paper Co.
Italy, 24 Italo-Brit. S.N. Co.
" 500 A. Dow White
" 100 W. C. Bacon & Co.
" 100 Co-op. L. Assn., Ltd.
" 200 Brandram Bros. & Co.
E. Indies, 50 Allan & Co.

**Talc—**
U. States, £150 Bailey & Leetham
E. Indies, 170 W. M. Smith & Sons
Singapore, 50

**Tallow—**
Queensland, 309 cks. Goad, Rigg & Co.
" 30 Low, Sons, & Bedford
" 102 Culverwell, Brooks, & Co.
" 34 D. J. Keymer & Co.
Belgium, 2 G. Haller & Co.
Melbourne, 130 Phillipps & Graves
Sydney, 294 Goad, Rigg, & Co.
" 1 A. Tremearne & Co.
Tasmania, 16 Hicks, Nash, & Co.
N. Zealand, 5 W. E. Bott & Co.
" 10 J. Graves
" 11 Anning & Cobb
" 155 Nelson Bros.
" 33 Flack, Chandler, & Co.
Sydney, 17 F. Stahlschmidt & Co.
" 303 A. G. Anderson
" 120 Anning & Cobb
" 120 Coml. Banking & Sydney
" 164 Beresford & Co.
Queensland, 51 Goldsbrough, Mort, & Co.
Sydney, 234 J. Greig
" 201 Hicks, Nash, & Co.
" 150 J. Morrison & Co.
" 144 Union L. Co., Ltd.
" 522 Cuthbert & Hall
" 487 Aust. Meat Co.
N. Zealand, 27 J. Morrison & Co.
" 125 N. Z. L. & M. A. Co.
Holland, 62 J. Owen
" 10 Phillipps & Graves
Melbourne, 313 D. C. Thomas & Sons
" 13 Goad, Rigg, & Co.
Sydney, 211 Leach & Co.
" 38 F. A. Edelstan & Co.
" 21 Kaul & Haenlein
N. Zealand, 19 Culverwell, Brooks, & Co.
Germany, 1 cs. T. Christy & Co.
Falkland Is., 153 Dyster, Nalder, & Co.
Sydney, 306 Elkan & Co.
" 154 D. C. Thomas & Sons
Queensland, 5 L. & I. Dk Co

**Tar—**
Germany, 200 brls. W. Beard & Son

**Tartar—**
France, 32 pkgs. Ross & Deering

**Tartaric Acid—**
Italy, 40 pkgs. J. Knill & Co.
Holland, 5 Middleton & Co.
" 4 C. Christopherson & Co.
" 4 J. Owen
Italy, 80 Middleton S. S. Wf. Co.

**Turpentine—**
N. Russia, 53 brls. C. B. Leighton
Germany, 5 cks. H. Lambert
France, 59 T. Trapp & Sons

**Ultramarine—**
Holland, 6 cs. Haeffner, Hilpert, & Co.
Germany, 37 pkgs. J. Kitchin, Ltd.

**Varnish—**
U. States, 22 pkgs. Pinchin, Johnson & Co.
" 16 Beck & Pollitzer
Belgium, 8 Stobbs, Wilson & Co.
" 4 Gellatly, Hankey & Co.
France, 12 Flageollet & Co.

**White Lead—**
Germany, 25 cks. Spies Brs. & Co.
Belgium, 5 J. L. Lyon & Co.
" 16 cs. Leach & Co.
" 24 brls. D. C. Thomas & Sons
Germany, 8 cks. Hardness & Co.
" 25 W. A. Rose & Co.
Holland, 31 S. H. Willoughby
France, 10 J. Watt & Son
Austria, 50 cs M. D. Co.

**Zinc Oxide—**
Holland, 130 brls. M. Ashby, Ld.
Germany, 25 cks. W. Fenton
Holland, 16 pkgs. Hickmann & Co.
Germany, 25 J. Matton
" 50 brls. M. Ashby, Ld.

**Zinc Sulphate—**
Germany, 32 pkgs. F. Smith

## LIVERPOOL.

*Week ending October 6th.*

**Aniline Salt—**
Rotterdam, 6 cks.

**Barytes—**
Rotterdam, 12 cks.

**Boracite—**
Pandermo, 174 t. Roberts & Evans
" 520

**Borax—**
Leghorn, 77 cks.

**Chemicals** (*otherwise undescribed*)
Rotterdam, 2 cks.

**Chloroform—**
In transit, 1 cs.

**Cobalt Ore—**
Iquique, 42 sks.

**Colours—**
Rotterdam, 12 cks. 12 cs.
Antwerp, 1 brl.
Hamburg, 10

**Cottonseed Oil—**
New York, 50 brls.

**Cream of Tartar—**
Spain, ppe.

**Dried Blood—**
La Plata, 824 bgs. J. E. W. Cook
B. Ayres, 2,263

**Dyestuffs—**
**Algorabilla**
Coquimbo, 17 bgs. Burgoyne, Burbridge & Co
Hamburg, 444
**Argols**
Bordeaux, 98 cks.
**Cochineal**
Canary, 8 bgs. Sperling & Williams
**Cutch**
Rangoon, 5,461 bxs.
" 2,502 Thompson, Anderson & Co.
**Extracts**
Ghent, 125 cks. J. T. Fletcher & Co.
New York, 8 brls.
Bordeaux, 100
Colon, 16 cs
**Gambier**
Akassa, 557 bgs. Royal Niger Co.
**Indigo**
Grand Bassa, 1 brl. Norton & Co.
**Madder**
Rotterdam, 1 ck.
**Sumac**
Fiume, 35 bls. Frattelle Levy
**Valonia**
Marathonisi, 155 bgs. & 222 t. in blk.
Smyrna, qty. 730
Zante, 431 bgs. Papayanni & Jeremias

**Iodine—**
Valparaiso, 20 brls. A. Gibb & Sons
" 10 Vorwerk, Gebr & Co.
" 12

**Limestone—**
Antwerp, 2 fms. J. T. Fletcher & Co.
" 2 cs. 4 crts.

**Manganese—**
Poti, 2,850 t. Caucasian Trading Co., Ld.
Oporto, 88 J. Silva & Co.
Gothenburg, 32 G. G. Blackwell

**Ochre—**
Rouen, 19 cks. Co-op. W'sale Society, Ld.

**Paint—**
Montreal, 23 brls. W. S. L.

**Paraffin Wax—**
New York, 150 brls.

**Plumbago—**
Montreal, 150 t.

**Potash—**
Rouen, 4 cks. R. J. Francis & Co.
" 20 Co-op. W'sale Society, Ld.
Dunkirk, 13 58 dms.
Montreal, 25 brls. J. C. Lindon

**Potassium Carbonate—**
Hamburg, 22 cks.

**Pyrites—**
Huelva, 1,514 t. Tennants & Co.
" 1,400 Matheson & Co.

**Rosin—**
Norfolk, Va., 500 brls.
New York, 1,000

**Saltpetre—**
Hamburg, 2 cks. 230 kgs 50 brls.

**Soap—**
Antwerp, 10 cs.

**Soda—**
Rotterdam, 2 cks.

**Sulphate of Silver—**
Havre, 5 cs. Cunard S. S. Co., Ld.

**Sulphur—**
Huelva, 1,450 t. Matheson & Co.

**Tallow—**
Boston, 39 pkgs.
Philadelphia, 68 hhds.

**Tartar—**
Bordeaux, 22 cks.

**Tartaric Acid—**
Rotterdam, 22 cks. 20 kgs.

**Ultramarine—**
Rotterdam, 37 cs. 10 cks.

**Waste Salt—**
Hamburg, 260 t.

**White Lead—**
Rotterdam, 56 cks.

**Zinc Ashes—**
B. Ayres, 786 bgs

**Zinc Oxide—**
Rotterdam 29 cks.
Antwerp, 17 brls.

**Zinc White—**
Rotterdam, 50 cks. O. & H. Marcus

## HULL.

*Week ending October 8th.*

**Acetic Acid—**
Rotterdam, 17 bkts. Hutchinson & Son
Hamburg, 5 cks. Furley & Co.

**Barytes—**
Antwerp, 34 cks. Bailey & Leetham
Bremen, 32 Veltmann & Co.
" 225

**Caoutchouc—**
Hamburg, 26 cs. C. M. Lofthouse & Co.

**Chemicals** (*otherwise undescribed*)
Stettin, 39 cks. Wilson, Sons & Co., Ld.
Copenhagen, 4 "
Christiania, 5 kgs. "
Bremen, 2 cs. Veltmann & Co.
Hamburg, 2 bgs. 90 cks. Wilson, Sons & Co., Ld.
Antwerp, 48 pks. "
Dunkirk, 101 "

**Colours—**
Rotterdam, 67 pks. W. & C. L. Ringrose
" 11 cks. Hutchinson & Son
Stettin, 134 Wilson, Sons & Co., Ld.
Amsterdam, 2 W. & C. L. Ringrose
Hamburg, 1 J. & T. Seddon
Bremen, 1 cs. 2 4 crts. Veltmann & Co.
Flushing, 5 21 253 pks. Zeeland S. S. Co.
Hamburg, 6 pks. Wilson, Sons & Co., Ld.
Rotterdam, 19 cks. 2 G. Lawson & Sons
Antwerp, 10 brls. Wilson, Sons & Co., Ld.
" 4 pks. 30 cks.

**Creosote—**
Hamburg, 4 cs. Wilson, Sons & Co., Ld.
Porsgrund, 1 brl. Wade, Sons & Co.

**Dextrine—**
Stettin, 16 bgs. Wilson, Sons & Co., Ld.

**Dyestuffs—**
**Alizarine**
Rotterdam, 225 pks. W. & C. L. Ringrose
**Valonia**
Smyrna, 572 bgs.

**Farina—**
Ghent, 80 cs. Wilson, S & Co.,
Hamburg, 25 bgs.
Harlingen, 50 bgs. W. & C. Ringr

**Glucose—**
Rotterdam, 120 bgs. Hutchin &

**Manganese—**
Rotterdam, 70 cks. Furley &

**Naphtha—**
Rotterdam, 2 cks. Hutchin &
Uleaborg, 12 J. Good & S

**Phosphate—**
Ghent, 100 t. Wilson, S & Co.,

**Pitch—**
Rotterdam, 50 lbs. Hutchin &

**Plumbago—**
Hamburg, 7 bales.

**Rosin—**
Hamburg, 1 cs. Wilson, S & Co.,

**Saltpetre—**
Hamburg, 6 cks.

**Stearine—**
Rotterdam, 10 bgs. Wilson, S & Co.,

**Tallow—**
Bluff, 95 cks.

**Tar—**
St. Petersburg, 64 cks.
Archangel, 8 brls.

**Tartaric Acid—**
Rotterdam, 2 cs. 18 cks. Hutchir &

**Tin Oxide—**
Rotterdam, 3 cks. Hutchin &

**Turpentine—**
Bordeaux, 10 brls.
Libau, 53 cks.

**Ultramarine—**
Hamburg, 8 cks.
Bremen, 4

**White Lead—**
Rotterdam, 57 cks. Hutchins & S
Antwerp, 33 Bailey Leeth
Rotterdam, 13 Sissons Brs. & C
" 13

**Zinc Oxide—**
Rotterdam, 7 cks. G. Lawson Sc

## GLASGOW.

*Week ending October 13th.*

**Arsenic—**
Hamburg, 50 cks.

**Barytes Sulphate—**
Ghent, 43 cks.

**Colours—**
Rotterdam, 2 bxs. J. Rank & S

**Cream of Tartar—**
Rotterdam, 9 cks. J. Rank & S
Tarragona, 5 pps.

**Dyestuffs—**
**Alizarine**
Rotterdam, 29 brls. J. Rank & S
" 54 cks.
**Extracts**
Ghent, 8 cks.
**Indigo**
Rotterdam, 23 chts. J. Rankin

**Lead Acetate—**
Ghent, 38 cks. Roberts M'Intosh &

**Paraffin Wax**
New York, 90 brls.

**Potassium Prussiate—**
Hamburg, 80 cks.

**Rosin—**
New York, 1,000 brls.

**Soap—**
New York, 450 bxs. 13 crts.

**Sodium Acetate—**
Ghent, 8 cks.

**Tallow—**
New York, 270 tcs. J. Osborne & Co.
" 50 hhds.
**Varnish—**
New York, 2 brls. 1 bx.
**Waste Salt—**
Hamburg, 610 bgs. 200 cks.
**White Lead—**
Rotterdam, 40 cks.
" 18 J. Rankine & Son
**Zinc Oxide—**
Rotterdam, 10 cks. J Rankine & Son
Ghent, 25
**Zinc Sulphate—**
Hamburg, 1 ck.
**Zinc White—**
Rotterdam, 300 cks. J. Rankine & Son

## TYNE.

*Week ending October 8th.*

**Alum Earth—**
Hamburg, 17 cks. Tyne S. S. Co.
**Asbestos—**
Rotterdam, 3 cs. Tyne S. S. Co.
**Barytes—**
Rotterdam, 23 cks. Tyne S. S. Co.
**Cryolite—**
Copenhagen, 1 ck.
**Farina—**
Hamburg, 25 bgs. Tyne S. S. Co.
**Manure—**
Stavanger, 96 bgs.
**Phosphate—**
Brunswick, 2,000 t. Langdale's Chemical Manure Co
**Plumbago—**
Antwerp, 1 bg. Tyne S. S Co.
**Pyrites—**
Huelva, 1,605 t. Scott Brs.
**Saltpetre—**
Harburg, 190 t. Clephans & Wiencke
Hamburg, 8 cks. Tyne S. S. Co.
**Ultramarine—**
Hamburg, 2 cks. Tyne S. S. Co.
**White Lead—**
Ghent, 13 brls. Tyne S S. Co.

## GOOLE.

*Week ending September 28th.*

**Antimony—**
Boulogne, 1 ck.
**Caoutchouc—**
Boulogne, 10 cks.
**Dyestuffs—**
**Alizarine**
Rotterdam, 917 pkgs.
**Extracts**
Ghent, 50 cks.
Rotterdam, 4 brls.
**Dyestuffs** *(otherwise undescribed)*
Boulogne, 29 cks. 6 cs. 36 pkgs.
Ghent, 42 brls.
**Farina—**
Delfszyhl, 200 bgs.
Hamburg, 50
**Glucose—**
Dunkirk, 60 bgs.
**Naphthol—**
Rotterdam, 6 cks.
**Potash—**
Dunkirk, 40 dms. 8 cks.
Calais, 39
**Potassium Carbonate—**
Hamburg, 11 cks.
**Saltpetre—**
Rotterdam, 100 bgs.
Hamburg, 2 cks.
**Waste Salt—**
Hamburg, 526 t. 1,575 cks. 508 bgs.
**Zinc Oxide—**
Antwerp, 4 brls.

## GRIMSBY.

*Week ending October 1st.*

**Chemicals** *(otherwise undescribed)*
Hamburg, 29 pkgs.
Rotterdam, 4
**Farina—**
Hamburg, 10 bgs.
**Size—**
Antwerp, 10 cks.
**Zinc Ashes—**
Antwerp, 15 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending October 12th.*

**Acid—**
Cape Town, 2 kgs. £15
**Alum—**
Mogador, 5 t. £30
Santos, 1 8
**Alum Cake—**
Bordeaux, 5 t. 14 c. £15
Calcutta, 10 32
**Ammonium Carbonate—**
Marseilles, 1 t. £30
Sydney, 10 cs. 17
Melbourne, 1 32
**Ammonium Chloride—**
Constantinople, 3 t. 13 c. £116
Messina, 6 10
Mengne, 10 17
Madras, 1 6 41
**Ammonium Sulphate—**
Dusseldorf, 41 t. £410
Treport, 10 100
Hamburg, 50 500
**Anhydrous Ammonia—**
Sydney, 10 clydrs. £26
**Barium Nitrate—**
New York, 2 t. 1 c. £40
**Benzoic Acid—**
New York, 6 cs. £42
**Borax—**
E. London, 3 cs. £16
Rio de Janeiro, 10 c. 14
Hamburg, 8 cks. 63
Rotterdam, 9 25
**Carbolic Acid—**
Baltimore, 7 cs. £34
Bombay, 1 t. 8 c. 32
Dusseldorf, 40 drs. 182
Santos, 3 1 ck. 23
Rotterdam, 7 2 320
Philadelphia, 160 742
**Caustic Potash—**
Auckland, 10 c. £25
**Caustic Soda—**
Wellington, 5 t. 8 c. £56
Pt. Elizabeth, 1 8 51
Melbourne, 13 45
Natal, 4 129
**Chemicals** *(otherwise undescribed)*
Madras, 10 pkgs. £14
Cape, 1 ck. 10
Adelaide, 4 cs. 27
Melbourne, 15 kgs. 90
Bombay, 26 150
**Chloride of Lime—**
Lyttelton, 1 t. £23
Santos, 4 c. 13
**Citric Acid—**
Bombay, 1 c. £8
Rotterdam, 1 67
Libau, 10 84
Hamburg, 1 t. 10 2 kgs. 269
Santos, 4 38
St. Petersburg, 1 t. 10 252
Barcelona, 8 cks. 330
Lisbon, 10 86
**Coal Products—**
**Alizarine**
New York, 50 cks. £795
**Aniline**
Melbourne, 2 cs. £22
**Aniline Oil**
Rotterdam, 12 drs. £400
**Anthracene**
Cologne, 456 cks. £2,237
Dusseldorf, 130 1,196
**Benzol**
Rotterdam, 20 cks. 20 pns. £2,071
Philadelphia, 20 drs. 238
**Coal Tar Dyes**
Boston, 12 cks. £248
**Creosote**
Bordeaux, 1,020 cks. £517
Bayonne, 1,800 brls. 725
**Naphthalene**
Hamburg, 15 cks. £133
Treport, 49 pkgs. 49
Cologne, 2 13
**Paraffin Wax**
Auckland, 3 tks. £145
E. London, 22 cs. 126
**Pitch**
Boulogne, 3 cts. £14
Alexandria, 450 brls. 153
Philadelphia, 500 cks. 257
New York, 500 1,974 bgs. 618
**Pitch and Tar**
Ibrail, 100 cks. £45
**Tar**
Philadelphia, 1,633 brls. £850
Stettin, 100 41
Natal, 20 rnlts. 225 drs. 38
New York, 1,150 cks. 590
**Tar Oil**
Galveston, 6,000 brls. £2,250
**Copper Sulphate—**
Sydney, t. 11 c. £82
Ghent, 59
Santos, 10 12
Varna, 15 11
**Corrosive Sublimate—**
Rio de Janeiro, 4 c. £48
**Cream of Tartar—**
Wellington, 4 c. £18
Gisborne, 2 9
Melbourne, 4 t. 10 452
Sydney, 1 5 104
Brisbane, 1 85
**Disinfectants—**
New York, 1 t. £50
Rosario. 63 pkgs. 41
Malta, 35 53
Bushire, 3 cks. 10
Sydney, 5 cs. 11
Auckland, 2 13
Wellington, 13 32
Cape Town, 80 49
Bombay, 2 10
**Flowers of Sulphur—**
Cape Town, 1 t. 16 c. £21
Sydney, 1 18
**Guano—**
Genoa, 25 t. £250
**Manure—**
Natal, 20 t. £45
Malaga, 29 13 c. 242
Barcelona, 24 12 194
Treport, 69 16 490
Genoa, 49 19 200
Alicante, 43 14 350
Hamburg, 19 11 60
**Phosphorus—**
Oporto, 2 cs. £22
Halifax, 6 66
**Potassium Bichromate—**
Auckland, 13 c. £30
Santos, 10 25
**Potassium Bisulphide—**
Bremen, 15 c. £49
**Potassium Chloride—**
Bombay, 3 c. £21
**Potassium Cyanide—**
Natal, 6 c. £35
**Potassium Prussiate—**
Sydney, 5 c. £23
**Saltpetre—**
Oporto, 2 t. 4 c. £44
Wellington, 10 11
Porto Alegre, 1 22
Rio de Janeiro, 20 12 458
Santos, 4 9 100
**Sheep Dip—**
Rosario, 120 drs. £86
Falklands, 30 49
Wanganui, 83 pkgs. 70
Algoa Bay, 1 t. 1 c. 15 drs. 55
E. London, 3 9 100
Natal, 1 1 100 75
**Soda—**
Sydney, 2 t. 4 c. £14
**Soda Ash—**
Wellington, 3 t. 5 c. £23
Philadelphia, 50 300
Sydney, 10 2 71
Townsville, 5 1 37
**Soda Salts—**
New York, 3 t. 11 c. £35
**Sodium Bicarbonate—**
Odessa, 8 c. £10
Auckland, 2 t. 10 20
Gisborne, 2 12
Barbadoes, 1 6
Sydney, 10 16 69
Melbourne, 10 16 69
**Sodium Silicate—**
Wellington, 2 t. 6 c. £13
**Sodium Sulphate—**
Wellington, 10 c. £2
Ghent, 60 t. £90
**Sodium Tartrate—**
Adelaide, 5 c. £17
**Strontium Nitrate—**
New York, 6 t. 15 c. £202
**Sulphur—**
Algoa Bay, 4 t. 9 c. £60
**Sulphur Dioxide—**
Melbourne, 5 cs. £35
**Sulphuric Acid—**
Natal, 3 t. 19 c. £50
Penang, 10 cs. 14
**Superphosphate—**
Bordeaux, 30 t. 3 c. £90
**Tartaric Acid—**
Sydney, 15 c. £80
Wellington, 1 16
Gisborne, 4 22
Adelaide, 5 25

## LIVERPOOL.

*Week ending October 12th.*

**Alum—**
Malta, 1 t. 18 c. £20
Rio de Janeiro, 19 5
Melbourne, 4 1 20
Valparaiso, 2 10 15
Valencia, 7 12 1 q. 40
**Ammonia—**
Norrkoping, 16 c. 3 q. £21
**Ammonium Carbonate—**
New York, 6 t. 9 c. 2 q. £200
Barcelona, 2 13 2 74
Bordeaux, 7 3 12
Oporto, 5 1 8
**Ammonium Chloride—**
Patras, 15 c. £24
Antwerp, 6 7
Montreal, 6 t. 11 131
Ibrail, 4 6
Galatz, 4 10
**Ammonium Sulphate—**
Barcelona, 60 t. 6 c. 2 q. £660
New York, 25 10 275
Hamburg, 55 11 585
Rouen, 16 10 165
Valencia, 50 506
Nantes, 70 15 736
Rio de Janeiro, 1 1 11
Demerara, 30 17 320
**Barytes—**
Piræus, 6 cks.
**Bleaching Powder—**
Baltimore, 210 cks
Bilbao, 29
Boston, 771

Lisbon, 51
Montreal, 88
New York, 225 136 bxs.
Trieste, 7
Bombay, 8 cs.
Calcutta, 100
Dunedin, 13
Genoa, 14
Ghent, 66
Hamburg, 1
Philadelphia, 43
San Sebastian, 28

**Borax—**
Nantes, 1 t. 2 c. £30
Tunis, 5 7
Antwerp, 19 2 q. 29
Ghent, 8 3 13
Hamburg, 11 8 305
Galatz, 2 5
Sydney, 2 61

**Calcium Chloride—**
Boston, 25 t. 4 c. £51
New York, 12 9 26

**Carbolic Acid—**
Montreal, 16 c. £19
Hamburg, 10 t. 460
New York, 10 2 q. 610
Rotterdam, 4 17 2 250

**Castor Oil—**
Dixcove, 5 cs.
Accra, 20

**Caustic Potash—**
Montreal, 1 t. 12 c. £40
New York, 27 14 715
St. Louis, 5 7
Boston, 3 11 98

**Caustic Soda—**
Baltimore, 100 dms. 135 brls. 76 cks.
B. Ayres, 3
Chicago, 50
Galatz, 48
Genoa, 64
Hamburg, 25
Havre, 18
Leghorn, 106
Marseilles, 20
Messina, 35
Montreal, 175
New Orleans, 55
Palermo, 66
Smyrna, 100
Yokohama, 50
Alicante, 115
Antwerp, 30
Barcelona, 60 4
Calcutta, 36
Ceara, 5
Damascus, 50
E. London, 18 bx
Fiume, 97
Hiogo, 100
La Plata, 100
Madeira, 10
Malta, 80
Newcastle, 70
New York, 500
Oporto, 28
Para, 23
Pasages, 80
Pernambuco, 115
Pt. Elizabeth, 5
Rio de Janeiro, 25
Rouen, 54
St. Petersburg, 400
Salaverry, 20
Santander, 30
Seville, 165
Valencia, 120 20
Valparaiso, 50

**Chemicals** *(otherwise undescribed)*
Odessa, 8 t. £150
Hamburg, 3 5 c. 1 q. 103
Yokohama, 2 19 2 90
Antwerp, 12 18
Rotterdam, 10 13 1 341
Genoa, 1 33
Malta, 1 10 49
Piræus, 6 9
Montreal, 1 50

**China Clay—**
Bombay, 260 cks.
Boston, 1,616 119 bgs.
Genoa, 4 bxs.

**Chloride of Lime—**
New York, 29 t. 10 c. £243
78 6 645

**Coal Products—**
**Aniline Colours**
Boston, 23 kgs.
**Aniline Salts**
New York, 75 cs. 11 cks.

**Cobalt Oxide—**
Gijon, 1 c. £45

**Colours—**
Bahia, 32 cks. 2 cs.

**Copperas—**
Bombay, 35 t. 8 c. 1 q. £85
Calcutta, 15 25
Volo, 3 6 3 7
Montreal, 10 10 1 25

**Copper Sulphate—**
Boston, 17 c. 2 q. £17
Rouen, 15 t. 13 235
Ghent, 2 6 1 31
Alexandretta, 1 14
Galatz, 2 18 1 41
Antwerp, 14 7 2 200
Montreal, 10 2 2 144
New York, 25 375
Rotterdam, 2 4 3 31
Havre, 1 11 3 22
Barcelona, 7 19 1 117
Genoa, 10 1 144
Bordeaux, 10 2 150
Odessa, 1 12 1 23
Calcutta, 15 221
Beyrout, 9 3 8

**Disinfectants—**
Smyrna, 12 c. £6
New York, 10 cks. 25 cs. 108
Trinidad, 4 dms. 2 9
Havana, 2 c. 1 q. 4

**Dried Blood—**
Bordeaux, 10 t. 3 c. 3 q. £50

**Farina—**
Bahia, 4 brls.
New York, 2 cs.

**Flowers of Sulphur—**
Iquitos, 10 c. £5

**Guano—**
Malaga, 186 t. 15 c. £1,681
Barcelona, 73 16 720

**Gypsum—**
New York, 71 t. 19 c. £265

**Iron Chloride—**
Bordeaux, 15 t. 2 c. £57

**Iron Sulphate—**
Alexandretta, 2 t. 10 c. 1 q. £5

**Lime—**
C. C. Castle, 1 ck.

**Magnesia—**
Montreal, 22 cs.
New Orleans, 1 ck.
Santos, 5

**Magnesium Borate—**
Montreal, 8 cks.

**Magnesium Chloride—**
Bombay, 15 t. 17 c. £43
Piræus, 2 13 7

**Magnesium Sulphate—**
Santos, 20 brls.

**Manure—**
Honolulu, 25 t. £226
Havre, 300 7 c. 2 q. 1,447

**Mineral White—**
New York, 50 bgs.

**Oxalic Acid—**
San Francisco, 1 t. 15 c. £49
Piræus, 4 7

**Paint—**
Axim, 10 dms.
Bilbao, 2 cks. 10
B. Ayres, 89
Calcutta, 1 bx. 38 5 26 kgs.
Cannes, 40 pkgs.
Capetown, 18
Gr. Bassam, 19 cns.
Marina, 13 cks. 104
M. Video, 2 brls.
Payta, 8
Shanghai, 1
Sierra Leone, 2
Beyrout, 9
Callao, 115 cs.
Halifax, 1
Kingston, 2 1
Marina, 1
New York, 20
Rio Grande, 2 cs.
St Nazaire, 10 dms.
Sulina, 2

**Painters' Colours—**
B. Ayres, 32 cs.
New York, 1 cs. 70 kgs. 56 cks. 239 brls.
Pernambuco, 20 15
St. John's, Nfld., 5 2 cs.
San Juan, 22
Trinidad, 40
Vera Cruz, 176
Bahia, 5
Belize, 15
Gothenburg, 25
Honolulu, 31 4
Lisbon, 37 2
Montreal, 140
Naples, 15 brls.
Natal, 280
Odessa, 30
Oporto, 24
Para, 20
Patras, 1 brl. 20
Portland, Or., 2
Rotterdam, 4
Santander, 23 brls. 24
Sydney, 17
Trieste, 50 bgs.
Valparaiso, 48 dms.
Wilna, 22 pkgs.

**Paraffin Wax—**
Ancona, 3 cs.
Boston, 50

**Phosphorus—**
Hong Kong, 2 cs. 1 c. 3 q. £53

**Picric Acid—**
New York, 1 t. £112

**Pitch—**
Calcutta, 57 brls.
Ibrail, 75
Brindisi, 1,942 t.
Galatz, 5
Vigo, 5¼

**Plumbago—**
Bahia, 1 ck.
Rosario, 2 cks.

**Potassium Bichromate—**
Syra, 15 c. £32

**Potassium Carbonate—**
New York, 17 t. 13 c. £349
St. Louis, 2 1 40

**Potassium Chlorate—**
Rotterdam, 2 t. £116
Antwerp, 1 50
Vera Cruz, 10 c. 30
Portland, O., 5 13
Hong Kong, 1 71
New York, 30 1,678
St. Petersburg, 10 10 599
M. Video, 1 8 80
Hiogo, 25 1,294

**Potassium Stannate—**
Bombay, 19 c. 1 q. £83

**Potassium Sulphate—**
Honolulu, 30 t. £270

**Salt—**
Calcutta, 6,216 t.
Iceland, 35 142 c.
Montreal, 130
Newcastle, 400
Rio Grande, 1 4
Trinidad, 40 4
Victoria, V.I., 75
Algoa Bay, 22
Antwerp, 225
Boston, 309
Cabenda, 37½
Chicago, 150
Copenhagen, 380
Ghent, 300
Halmstad, 250 trs.
Lagos, 20
Landana, 16
Lisbon, 1 cs.
Melbourne, 25
Newport, 30
New Orleans, 400
" York, 570 5,250 sks.
Old Calabar, 25
Opobo, 120
Rotterdam, 246
Wilmington, 350
Winnebah, 7½

**Salt Cake—**
New York, 2 t. £20
Kokhomo, 63 1 c. 156
Baltimore, 556 12 1,238

**Saltpetre—**
Maranham, 1 t. 1 c. £24
Para, 1 22

**Sheep Dip—**
M. Video, 1 t. 1 c. £30
Calcutta, 1 10 38
Rosario, 20 999
B. Ayres, 3 15 100

**Size—**
Boston, 10 brls.
Lisbon, 31 cks.

**Soap—**
Alexandria, 15 bxs. 2 cks. 30 c
Algoa Bay, 32 20
Barbadoes, 400 2
Bombay, 5 80
B. Ayres, 6 brls. 10
Calcutta, 37 tcs. 1 19
E. London, 1,160 50
Hamburg, 43
Havana, 6 kgs.
Ibrail, 2
Lausanne, 120
Liege Meuse, 400
Montreal, 206
New York, 300 3 76
Pt. Elizabeth, 1,384 50
St. John's, Nfld., 135 57
Trinidad, 800 1
Accra, 100
Addah, 50
Ambrizette, 40
Antofagasta, 1
Antwerp, 35
Bakana, 200 1
Batavia, 2,500
Belize, 902
Benin, 200
Buguma, 50
Cameroon, 80
C.C. Castle, 85 brls.
Capetown, 1,380
Cette, 26
Copenhagen, 40
Degama, 5
Gaboon, 35
Gibraltar, 261
Honolulu, 1
Iquique, 100
Kingston, 650
Landana, 100
Livingstone, 50
Maceio, 12
Manaos, 700
Malta, 30
Matanzas, 25
Mossel Bay, 340
Natal, 874
N. Pongwe, 130
Opobo, 500
Para, 400
Penang,
Piræus, 20 bdls.
Pt. Natal, 594
San Francisco, 1
Sierra Leone, 100 6
Singapore, 389
Tangiers,
Teneriffe, 450
Warre, 250

**Soda—**
New York, 25 cks.

**Soda Alkali—**
Dunedin, 40 brls
Malta, 80
Newcastle, 40
Smyrna, 35

**Soda Ash—**
Baltimore, 464 cks.
Boston, 264 1,000
B. Ayres, 50 brls.
Cadiz, 2
New York, 290 539 tcs. 78
Porto Alegre, 20
Rio de Janeiro, 150 brls.
Venice, 21
Amsterdam, 3
Bahia, 15
Bordeaux, 20
Calcutta, 52
Constantinople, 8
Copenhagen, 10
Corfu, 200
Madeira, 10
Montreal, 15
Philadelphia, 65 167 bgs.
San Francisco, 64
Sydney, 64
Yokohama, 100

**Soda Crystals—**
Campbellford, 20 kgs.
Corfu, 10 brls
Montreal, 720 20
Peterborough, 20
Boston, 640
Cairo, 33
Honolulu, 1
Kingston,
Kurrachee, 50
Naples,
Pernambuco, 20
Philadelphia, 167
Smyrna, 50
Valparaiso, 50

**Sodium Biborate—**
Montreal, 3 t. 3 q.
Dunkirk, 3
M. Video, 2 10 c.
Ghent, 1 2
Yokohama, 50 cs.

**Sodium Bicarbonate—**
New York, 20
Bordeaux, 50 cks.
Brisbane, 100 kgs.
B. Ayres, 92
Calcutta, 650
Constantinople, 20

Copenhagen, 47 2
Dunkirk, 30 cs.
Hamburg, 20 9
Melbourne, 600 10
Montreal, 530 18
Rotterdam, 145 1
San Francisco, 200
Sydney, 100
Trieste, 20
Wellington, 6

**Sodium Carbonate—**
Montreal, 56 brls.
Boston, 84
Hango, 100 dms.
Rotterdam, 50

**Sodium Chlorate—**
Rotterdam, 24 kgs. 3 brls.

**Sodium Nitrate—**
Havre, 34 cks.

**Sodium Silicate—**
Hamburg, 20 kgs.
Montreal, 10 cks.
Piræus, 33
Pt. Elizabeth, 10
Seville, 285 brls.

**Sodium Sulphate—**
New York, 25 cks.

**Sodium Sulphite—**
Philadelphia, 200 brls.

**Stearine—**
Vera Cruz, 6 cs.

**Sulphur—**
Halifax, 5 t. 2 c. 1 q. £32
Montreal, 176 17 2 907

**Superphosphate—**
Honolulu, 91 t. £230

**Tallow—**
Alexandria, 86 brls.
Callao, 10
Oporto, 12 cks.
Rio de Janeiro, 1
Santander, 13
Bilbao, 27
Calcutta, 2
Vigo, 90

**Tar—**
Galatz, 24 t.
Honolulu, 20 brls.
Natal, 250 dms.
Pt. Natal, 540

**Tartaric Acid—**
Guayaquil, 1 c. £5

**Turpentine—**
Singapore, 30 dms.

**Varnish—**
B. Ayres, 38 cs.
Calcutta, 10 dms.
Capetown, 3
Rio de Janeiro, 2 brls.
Trinidad, 1
Kingston, Ont., 1
New York, 4

**Verdigris—**
Santos, 1 c. £6

**White Lead—**
Bahia, 100 fkns.
Lisbon, 50 cks.

**Zinc Chloride—**
Bombay, 2 t. 13 c. 1 q. £46

**Zinc Sulphide—**
New York, 2 t. 11 c. £38

**Zinc White—**
Genoa, 4 cks.

## HULL.

*Week ending October 8th.*

**Aniline—**
St. Petersburg, 5 cs.

**Ammonia—**
Hamburg, 18 cks.

**Bleaching Powder—**
Boston, 242 cks.
Gothenburg, 14
Stettin, 91 20 bls.

**Caustic Soda—**
Antwerp, 1 ck.
Libau, 61 dms.
Riga, 20 740
Stettin, 34

**Chemicals** (*otherwise undescribed.*)
Amsterdam, 5 cks.
Abo, 1 cs 8 101 pkgs.
Bremen, 2 4
Christiania, 5 12 pks. 203 slbs.
Copenhagen, 3 5
Dunkirk, 15
Gothenburg, 5
Hamburg, 78 30
Harlingen, 6
Konigsberg, 2 12 17
New York, 50
Riga, 2 550
Rotterdam, 100 54 1 pkg.
Stockholm, 2 10 20
St. Petersburg, 3 2
San Francisco, 119
Trieste, 10

**Cottonseed Oil—**
Antwerp, 741 c.
Bremen, 34
Copenhagen, 186
Flushing, 300
Fiume, 80
Gothenburg, 205
Hamburg, 2,329
Konigsberg, 60
Rotterdam, 1,846
Stettin, 529
Trieste, 498

**Creosote—**
Amsterdam, 7 cks.
Rotterdam, 21

**Dyestuffs** (*otherwise undescribed*)
Boston, 19 cks.
Christiania, 124 bls.
Stettin, 85
St. Petersburg, 14 2 dms.

**Gypsum—**
New York, 120 cks.

**Linseed Oil—**
Bergen, 34 c.
Christiania, 232
Copenhagen, 21
Drontheim, 69
Hamburg, 166
Stavanger, 3

**Manure—**
Dunkirk, 23 t.
Ghent, 303 bls.
Hamburg, 85 251
Stettin, 50
Stavanger, 2 bgs.

**Mineral White—**
St. Petersburg, 50 t. 500 bls.

**Naphtha—**
Copenhagen, 5 cks.

**Ochre—**
Dunkirk, 5 cks.

**Painters' Colours—**
Antwerp, 50 cks.
Boston, 60
Christiania, 3
Copenhagen, 10 9 dms.
Dunkirk, 1
Ghent, 13
Gothenburg, 6 cs. 1
Hamburg, 40
New York, 120
Rotterdam, 1 25 14
Rouen, 8
Stockholm, 1 3
Stettin, 59
St. Petersburg, 82
San Francisco, 3 440
Trieste, 13

**Pitch—**
Antwerp, 347 t.

**Salt—**
Copenhagen, 5 t. 4 dms.

**Size—**
Flushing, 42 cks.

**Soap—**
Rotterdam, 20 cs.
Stettin, 60

**Tallow—**
Gothenburg, 15 cks.

**Tar—**
Christiania, 13 cks.
Copenhagen, 4

**Varnish—**
Christiania, 1 cs.
Ghent, 5
Hamburg, 1
Stettin, 1

**Zinc Chlorate—**
Flushing, 20 cks.

## GLASGOW.

*Week ending October 13th.*

**Alizarine Oil—**
Lisbon, 1 t. 7 c. £21

**Ammonium Sulphate—**
Antwerp, 49 t. 4 c. £503
Rouen, 41 13½ 420

**Aniline Salt—**
Lisbon, 17¼ c. £55

**Bichrome—**
Rouen, 10 t.
Antwerp, 129 1,188

**Bleaching Powder—**
Sydney, 6 t. 4 c. £45

**Chemicals** (*otherwise undescribed*)
Lisbon, £100

**Chloride of Lime—**
Boston, 6 t. 11¼ c. £55

**Colours—**
Chili, 1 t. 6 c. £50

**Creosote Oil—**
Drontheim, 5 brls. £2. 10s.

**Dyestuffs—**
**Aniline**
Calcutta, 6 c. £86
**Extracts**
Lisbon, 1 t. 11 c. £24. 14s.
Montreal, 4 9¾ 125
**Indigo Extract**
New York, 6 t. 1¼ c. £150

**Dyestuffs** (*otherwise undescribed*)
Montreal, £27. 10s.

**Linseed Oil—**
Cape Colony, 1 t. 7 c. £26. 12s.
Rangoon, 1 18 43 10
Montreal, 3 2 70
Shanghai, 3 11½ 83

**Litharge—**
Montreal, 11 t. 18½ c. £175

**Manganese—**
Rouen, 4 t. 19 c. £45

**Magnesium Sulphate—**
Sydney, 7 t. 4 c. £50

**Manure—**
New York, 55 t. 11¾ c. £150
Java, 9 14 90
Cape Colony, 110

**Nitrate of Lead—**
Montreal, 5 t. 8¼ c. £92

**Paint—**
Chili, 8 t. 5¼ c. £184
Java, 9 ¼ 144
Singapore, 5 11½ 82
Shanghai, 201 231

**Painters' Colours—**
Sydney, £217
Cape Colony, 64
Rangoon, 14 t. ¾ c. 162
Java, 4 12 50

**Paraffin Wax—**
Rouen, 1 t. 2¼ c. £30
Japan, 6 3 160

**Pitch—**
Havre, 180 t. £225
Rouen, 450
Amsterdam, 51 76

**Plumbago—**
Java, 1 t. 3¼ c. £28

**Potassium Bichromate—**
Boston, 8 t. 13 c. £325
Japan, 2 12½ 105

**Potassium Prussiate—**
Rouen, 10¾ c. £29. 15s.

**Saltcake—**
Antwerp, 262 t. 5½ c. £525

**Soap—**
Chili, 10¼ c. £61
Cape Colony, 2 t. 14¼ 70
Rangoon, 2 10 30
Hong Kong, 2 13¼ 43

**Sulphuric Acid—**
Rangoon, 27 t. 3¼ c. £225

**Tallow—**
Rotterdam, 4 t. 12¾ c. £130

**Tar—**
Odessa, 174½ t. £316
Rangoon, 81
Java, 112

**White Lead—**
Sydney, 12 t. 6½ c. £268
Cape Colony, 3 1¼ 64
Huelva, 1 3 £23. 19s.
Shanghai, 5 12¾ 110

## TYNE.

*Week ending October 8th.*

**Alkali—**
Savona, 38 t. 1 c.
Rotterdam, 3 5

**Ammonium Sulphate—**
Hamburg, 25 t.

**Antimony—**
Hamburg, 6 t.

**Arsenic—**
Genoa, 3 t.

**Barium—**
Rouen, 6 t. 14 c.

**Barytes—**
Hamburg, 151 t.
Rouen, 15

**Bleaching Powder—**
Antwerp, 34 t. 18 c.
Hamburg, 53 11
Christiania, 27 18
Rouen, 5
Rotterdam, 34 13
Odense, 2 7
Trondhjeim, 20 9
Copenhagen, 28 6

**Caustic Soda—**
Antwerp, 4 t. 7 c.
Hamburg, 10 3
Christiania, 4 18
Rotterdam, 9 19
Odense, 9 19
Genoa, 92 t. 18
Copenhagen, 16 10

**Chloride of Lime—**
Bergen, 2 c.

**Colours—**
Antwerp, 2 c.

**Copperas—**
Rotterdam, 3 t. 1 c.
Aarhuus, 1 18

**Linseed Oil—**
Christiania, 3 c.

**Litharge—**
Hamburg, 1 t. 6 c.
Rouen, 3 7
Genoa, 1 3

**Magnesia—**
Hamburg, 1 t. 6 c.
Genoa, 1 9

**Ochre—**
Laurvig, 3 c.

**Paint—**
Bergen, 17 c.
Christiania, 2
Tonsberg, 3

**Salt—**
Iceland, 1 t.

**Soda—**
Bergen, 4 t. 8 c.
Christiania, 10 1

**Soda Ash—**
Bergen, 6 t. 8 c.
Hamburg, 2 8
Christiania, 16 17
Genoa, 10 4

**Sulphur—**
Hamburg, 10 t.
Antwerp, 10
Rotterdam, 216 4 c.

**White Lead—**
Copenhagen, 2 t. 18 c.

## GOOLE.

*Week ending September 28th.*

**Benzol—**
Rotterdam, 48 cks.

**Chemicals** (*otherwise undescribed*)
Ghent, 1 cs.
Hamburg, 3 cks.
Rotterdam, 31

**Coal Products** (*otherwise undesc'd.*)
Ghent, 14 cks.

**Dyestuffs** (*otherwise undescribed*)
Antwerp, 3 cks. 2 dms.
Ghent, 5 10

**Manure—**
Dunkirk, 412 bgs.
Ghent, 150
Hamburg, 94
Rotterdam, 344

**Size—**
Ghent, 10 cks.

## GRIMSBY.

*Week ending October 1st.*

**Chemicals** (*otherwise undescribed*)
Dieppe, 31 cks.
Gothenburg, 20
Hamburg, 36 79 pkgs.

**Coal Products** (*otherwise undesc'd.*)
Dieppe, 170 cks.

**Dyestuffs** (*otherwise undescribed*)
Dieppe, 5 cks.

# PRICES CURRENT.

WEDNESDAY, Oct. 19th, 1892.

Prepared by Higginbottom and Co., 116, Portland Street, Manchester.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids:—** | | | | |
| Acetic, 25 % and 40 % | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | 50/- | | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 %) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 10 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 1 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 10 | 1 | 3 |
| ,, ,, (grey) Hull | ,, | 10 | 1 | 3 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 7 | 15 | 0 |
| ,, Liquor, 7 % | ,, | 3 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes:—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8¾ |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 9½ |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 7 |
| ,, 50/90 ,, | ,, | 0 | 1 | 6 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 5¼ |
| ,, (crude 60°) | per gallon | 0 | 1 | 5 |
| Creosote (ordinary) | ,, | 0 | 0 | 1½ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 1 | 0 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 45 | 16 | 3 |
| ,, Sulphate | ,, | 15 | 0 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 15 | 0 |
| ,, Litharge Flake (ex ship) | ,, | 13 | 10 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 6 | 0 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 3 | 10 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 4 | 3 |
| **Oils:—** | | | | |
| Cotton-seed | per ton | 18 | 10 | 0 |
| Linseed | ,, | 20 | 0 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 7½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 12 | 6 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 | 0 |
| Silver (metal) | per oz. | 0 | 3 | 2½ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 7 | 6 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 5 | 15 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 18 | 10 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 15 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Borate (Borax) | net, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton (10 ton lots) | | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) ,, ,, ,, (10 ton lots) | | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) ,, ,, ,, (10 ton lots) | | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) ,, ,, ,, (10 ton lots) | | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) ,, (10 ton lots) | | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 15 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 4½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¾ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 15 | 0 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7¼ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7½ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone: Best Quality (nominal) | ,, | 5 | 0 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 98 | 0 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 18 | 17 | 6 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# HEMICAL TRADE JOURNAL

AND

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## THE "NEW DEPARTURE."

REFERENCE to our correspondence columns this week will bring our readers face to face with a problem, of which, we believe, scarcely more than a passing notice has ever appeared in our pages. We refer to the production of "bleach" from the hitherto waste chlorine of the ammonia-soda process, described in the *Times* of Friday in last week.

Residents in the vicinity of Northwich have known for a very long time that extensive experiments have been going on at the works of Messrs. Brunner, Mond and Co., with a view to the production of "bleach" from the source indicated. Many rumours have got abroad, and from the information given by the *Times*, some of them turn out to be correct, so that if one carefully selects the evidence at his disposal, reading between the lines, the feasibility of the "new departure" and its pecuniary success may be very accurately prejudged.

We do not for one moment wish to infer that the process is not all that is described by the *Times* correspondent in his ecstacy of rhapsodial enchantment, as, no doubt, under the ingenious and careful watchfulness of a chemical engineer of Mr. Mond's calibre, many things are possible which to the average chemist are certainly outside the circle of attainment. But, what about the money aspect of the question? We are most certainly of opinion that the statement of the *Times*—"The new Mond process gives the cheap bleaching powder required"—is not warranted by the length of time "bleach" has been turned out.

It is not the production of bleach that is the question in all these new attacks on the old process; it is the *cost* of production, and until we have further proofs of the superiority of any new process in this direction, we religiously cling to the "old love."

The "new departure" has been so well and minutely described in the *Times* that it is unnecessary to give more than a summary, and this may be found in another column.

To sum up, the waste chloride of ammonium is decomposed at a high temperature with magnesia, instead of lime in aqueous solution, the ammonia (or part of it) is recovered and magnesium chloride formed, from which chlorine is generated. We must pause to ask ourselves: Does this simplify matters that have been already long known? The problem is not so simple as the *Times* correspondent would have us believe. That the reactions are all chemically possible no one will deny, but the real question is, what will be the cost of rendering those reactions *so complete* as to make the process pay.

As we have said before, the process is not so simple as it looks. The waste liquors from the carbonators are not pure solutions. Suppose them to contain 6·0 per cent. of ammonia, they will also contain nearly 8·0 per cent. of salt, while of the ammonia itself 75 per cent. only is chloride, the remaining 25 per cent. being either a carbonate *or* chloride in contact with bicarbonate of soda.

We are not attempting to argue that the recovery is not possible, it is possible *at a price*, but we are brought face to face with all the difficulties of the muriate of ammonia sublimer, and all who know that business will be only too ready to assert that they are not few. Add to these the difficulties that have been encountered in the Weldon "Magnesia process," the "Weldon Pechiney" process, and the "Deacon process," and we have the "new departure" in a nutshell.

Backed by enormous resources, there is no doubt that "bleach" may be made by the new departure for a longer period than would be the case in a smaller concern, but if the revenue is not greater than the expenditure, it is only another process of assuring the continuance of remunerative prices for ammonia-soda.

So far, and in this connection, we have not seen any reason why holders of United Alkali Co.'s shares should feel despondent. We had not yet felt that the matter was ripe enough for notice in these pages, but the fact of a column in the *Times*, and considerable correspondence to our editorial department is our justification for these few remarks.

## THE TECHNICAL EXAMINATION OF ARTIFICIAL STRONTIANITE.

By F. Sterba.

*Determination of the total Strontium as sulphate, including Barium if present.*

TWENTY grammes of the average sample are dissolved in hydrochloric acid, boiled and the undecomposed residue (silica, strontium sulphate, and possibly barium sulphate) filtered off. The latter is fused with sodium potassium carbonate and the silica and strontium (including Ba) determined. The filtrate is made up to 500 c.c. and two portions of 50 c.c. each (= 2 grm. substance) taken for the determination of the strontium. Ferric oxide and alumina are removed by precipitation (repeated twice) and the strontium then precipitated from the faintly ammoniacal filtrate by ammonium sulphate. From the precipitate thus obtained the barium sulphate, as determined by the method described below, is subtracted. The remaining strontium sulphate calculated to carbonate gives the total percentage of strontium (calculated as carbonate). The actual amount of carbonate is given by a determination of the carbonic acid.

*Determination of Barium.*

Ten grammes of the sample are dissolved in dilute nitric acid, evaporated to dryness, dried at 190° for two hours and the residue extracted with a mixture of equal parts of alcohol and ether, washed with the same mixture, dissolved in water and the barium separated from the strontium. The former is precipitated from the hot solution, made alkaline with ammonia and then acidified with acetic acid, by means of ammonium bichromate, and the barium chromate either weighed as such (dried at 100° C.) or dissolved in dilute hydrochloric acid and precipitated as sulphate. The barium is then calculated as carbonate and carbonic acid corresponding to it subtracted from the total amount. Since some strontium chromate is always precipitated with the barium, the process should be repeated.

*Determination of Calcium.*

Twenty grammes of the original substance are dissolved in about 50 c.c. hydrochloric acid of 20° B. in a 500 c.c. flask, precipitated hot with sulphuric acid of 25·30° B.; made up to 500 c.c., and 250 c c. of the filtrate treated with ammonia, filtered and then precipitated with ammonium oxalate, the precipitate being washed and estimated volumetrically by potassium permanganate solution. The calcium found is calculated as carbonate, the corresponding carbonic acid subtracted from the total amount and the remaining carbonic acid calculated as strontium carbonate.

The difference between this number and the total amount of strontium as determined in (1) (after allowing for the barium) is equal to the amount of strontium (calculated as carbonate) combined with silica.

*Determination of total water-soluble constituents* (alkalis and small amounts of silica.)

Twenty grammes of the original substance are boiled with water for half an hour in a 500 c.c. flask, allowed to cool, about 10 c.c. of a cold saturated solution of ammonium carbonate and a few drops of ammonia added and the whole made up to 500 c.c. A weighed platinum basin is then taken, 250 c.c. of the filtrate placed in it, evaporated and the residue ignited and weighed.

*Determination of the total sulphur* (due to the presence of posed strontium or barium sulphate.)

Ten grammes of the original substance are fused with sod sium carbonate, the fused mass boiled out with water and th acid precipitated in an aliquot portion of the filtrate by means chloride.

Determination of the carbonic acid is carried out in the us

*Determination of Moisture* (loss on ignition).

Ten grammes of the substance are gently ignited for a quarters of an hour, moistened with a little ammonium carb gently heated until the weight is constant.—*Chem. Zeit.*

## THE ADULTERATION OF LINSEED OIL RESIN OILS.

By F. Coreil.

(*Translated for the* Journal.)

RESIN oils have long been used for the adulteration of oils employed industrially, and especially of linseed oi

The detection of this form of adulterant does not presen culty. Resin oils have a very high density (from 960 Moreover, they all rotate the plane of polarization of light the right, and this is their most distinctive property. Oil alone of the other oils rotates the plane of polarization in thi but the rotation of this (from 3·1-7·7 saccharimetric degrees ficant in comparison with that produced by the resin oils, amount to 200 degrees (according to M. Buland, of Mars has furnished this information).

These oils, however, possess various other characteristic p

They become red and then brown when treated with stann and, like the mineral oils, they cannot be saponified by caus

The special colour, odour and taste of the resin oils may as a means of detecting them, since the addition of only 5-1 of the adulterant is sufficient to completely alter the smell a linseed oil. To these properties may be added that of becor and then black when a current of chlorine is passed thr This property also belongs to the animal oils, and has not. am aware, been previously observed with the resin oils. T tion of this black colour has in fact been considered as char the animal oils, but, notwithstanding this, I have met samples of resin oils which were all turned brown and the chlorine. M. Buland informs me that two samples of thes possession show the same reaction.

To show how this reaction may be employed to detect linseed oil, I quote one of my experiments.

A current of chlorine was passed for three minutes into and then for similar periods into the same oil to which 5, per cent. of resin oil had been added, and finally into t employed.

The pure linseed oil became slightly discoloured.
5% of resin oil ,, as above.
10% ,, ,, slightly brown.
20% ,, ,, slightly brown.

The resin oil itself became of a reddish brown colour.

These oils examined after standing for five minutes, had n unless those containing 10 and 20 per cent. respectively ha slightly. Three hours afterwards the pure linseed oil had n the 5 per cent. mixture was of a light brown tint, that of was a little darker, and the resin oil was quite black. Al easy enough to recognise the resin oils by means of the described above, even when they are present in a mixture, ye means so easy to determine the proportion in which they ar

Two processes have been suggested and are employed t the amount of resin oils in vegetable oils.

The first is due to M. Remont (Journ. de Pharm. et de 1880), and consists in saponifying the suspected oil with a caustic potash in presence of alcohol, separating the resid weighing it. The second process has been brought forw Aignan (Comptes Rendus, 110, 1273, 1890), and is foun rotary power of the oils. M. Remont's process has no satisfactory results in estimating the amount of resin oil in oi The complete separation of the unsaponified product is no to effect, at all events with the mixtures tested by me. M M. Remont himself observes in his paper, "Resin oil addition to hydrocarbons contain substances related to the not completely unattacked by alkalies." In such a cas even that a perfect separation were effected, a certain prop resin oil would be combined with the alkali and would not b thus causing an error which may be of importance. T proposed by M. Aignan is based on the fact that a mixtu

## THE NEW DEPARTURE.

AFTER a digest of the various operations employed in the manufacture of ammonia soda, the *Times* says :—

Instead of boiling his ammonium chloride with lime, Mr. Mond freezes it by means of an ammonia refrigerating apparatus, which by passing the gas through an endless cycle of condensations and expansions produces any required amount of cold. Treated in this way the ammonium chloride crystallizes out of the solution. It is dried and subjected to the opposite extreme of temperature. Somewhere about a red-heat it sublimes and probably suffers temporary decomposition, the hydrochloric acid and the ammonia existing in the vapour as separate and uncombined gases. The vapour is passed over magnesium oxide mechanically arranged so as to present the largest possible surface. Then comes the characteristic reaction of the new chlorine-recovery process. The magnesium oxide gives up its oxygen, which combines with hydrogen to form water. In place of the oxygen the magnesium combines with the chlorine of the ammonium chloride, and free ammonia is obtained and collected in the usual way. At this point, therefore, the account stands thus—bicarbonate of soda in the solid form, only needing to be heated to give soda ash; the ammonia used in the process wholly recovered, barring a percentage of waste, in its original gaseous state; and the chlorine wholly fixed as magnesium chloride. Now the reaction which produced magnesium chloride is exactly reversed. Hot air is passed over the chloride as hot chlorine was passed over the oxide, and as the chlorine of the ammonium chloride drove out the oxygen of the oxide, so now the oxygen of the air drives out the chlorine of the chloride. The free chlorine is passed over the caustic lime from the kilns after it is slaked with water, producing bleaching powder, and the magnesium oxide is left in its original condition ready to decompose a fresh batch of ammonium chloride. Thus the chlorine of the original brine is combined with the lime of the original chalk, the soda of the brine is combined with the carbonic acid of the chalk, the ammonia and the magnesium oxide employed in the process have been given back in their original forms, and nothing has disappeared except the coal which has furnished the heat required to effect the transformation.

## COLLAPSE OF A CHIMNEY-STACK.

ON Friday last week, a serious accident happened at the Alum Works of Messrs. Peter Spence and Co., Goole. It appears that the principal stack at the works, an octagonal chimney about fifty yards high, which was badly crooked and was being straightened by men in the employ of Mr. Bidder, contracter, Manchester, suddenly gave way about five o'clock. It fell in a westerly direction with a great crash. Henry George, a workman who was engaged straightening the chimney, had been working with a labourer at the foot of the erection, and as it was getting dark they commenced to put their tools away and give up work for the night, when George noticed one of the iron hoops at the base of the chimney give way. Instinctively they ran out of the way, and without further warning the huge erection came tumbling down, smashing in its course vitriol chambers, and the Glover and Gay Lussac towers. The chimney fell in the opposite direction to that in which George ran, or he would certainly have been killed on the spot. Unfortunately, however, four men who are employed at the Alum Works were severely injured by the falling debris. In the case of one of them, a plumber, named John Hebron, who had one of his legs cut off and sustained other injuries, a fatal termination is feared. Others injured were as follows :—John O' Brien, labourer, cut on head and scalded; Albert Smith, towerman, scalded on head and bruised; W. Nicholls, towerman, also scalded on the head. Dr. Blair was promptly in attendance, followed by Drs. Gentle and Allcock, and several policemen. Hebron, O'Brien, and Smith, were removed to the Cottage Hospital, were they were attended by Drs. Blair and Bruce. The employés number 125, and it is feared many of them will be thrown out of work. It has been stated by the manager that the damage would amount to several thousands of pounds. The foundations had been giving way, owing it is believed to the action of the floods, and the workmen had been employed straightening the chimney for over a fortnight. The chimney was built about twenty years ago, and has been straightened two or three times before. The smell of the sulphurous acid, which owing to the destruction of the chambers had been freed, was almost suffocating. At the time of the accident they were changing shifts at the tower house, or the result would have been far more disastrous.

An Oil Warehouse on Fire.—A serious fire occurred last week on the premises of Mr. Marshall, oil merchant, Newcastle. The damage is estimated at £5,000.

# Paper Makers' Column.

### WOOD PULP.

WOOD cellulose enters so largely into the composition of paper now-a-days, that any matter relating to its manufacture is of great importance to the paper maker. The treatment of wood by the now well known chemical methods for the purpose of preparing paper pulp from it, is not very generally adopted by paper makers in this country, mainly on account of the prevalent notion that it can be purchased almost, if not quite as cheaply as it can be made. Time and experience will doubtless tell whether any advantage is gained by making the pulp on the spot where it is used in accordance with the requirements of paper manufacturers, or whether it is better to follow the lines at present adopted in this country of purchasing the pulp from foreign producers. It is not our intention to discuss such a broad and deep subject as this is, in the limits of the present article, but to lay before our paper making readers, some facts relating to the manufacture of wood pulp which we commend to their careful consideration.

It is well know that wood yields a high per centage amount of pulp, and if it be compared weight for weight with other available fibrous plants, it will probably be found to yield the highest of all. The development in recent times, of many systems of treating fibrous plants, has led to hesitation on the part of manufacturers as to the selection of any special system of treatment. Raw fibres of the type of esparto and straw can only be advantageously treated so far as present experience goes, by one process, namely, the soda process. With wood, however, it is different, because we have three distinct methods of chemical treatment known respectively as the caustic, sulphate, and bisulphite processes. These processes are employed on an enormous scale in Europe and America, and yield different quantities of paper pulp from the same kind of wood as well as fibres differing from one another in quality and paper making properties.

Although the yield of pulp from white pine in the soda or sulphate process is subject to fluctuation with the different conditions under which the wood is digested, yet, broadly speaking, there is a uniformity noticeable among the results obtained in factories where either of these processes is at work—the yield obtained in one factory using for example the caustic method being practically equal to the yield of another using the same process Any apparent difference which arises in the comparison of results will be traced to differences in the mode of preparing and measuring the wood, and seldom to any great difference in the percentage yield of pulp from the actual weight of dry wood employed. As pulp wood is bought by measurement instead of by weight results expressed on the basis of the weight of wood used, unless so expressed very accurately, are uncertain, and will be found as a general rule to be of less value than these expressed on the measurement.

Some discussions have recently taken place on the comparative yield of pulp from pine wood (*pinus silvestris*) by the different chemical processes in use on the continent, and as these are more than usually interesting to paper makers at the present time in our own country we have the pleasure to reproduce them.

#### THE CAUSTIC SODA PROCESS.

In this process the purest commercial caustic soda is generally employed, the wood being digested at a pressure ranging from 110 lbs. to 140 lbs. per square inch above atmosphere in a caustic lye of from 14 to 17° Twaddell. The pulp obtained is bright in colour, very soft, pliable and felts well. It is in every respect a good paper making fibre, producing a soft pliable sheet, admirably adapted to the requirements of the printer. The action of caustic soda on cellulose is, however, much more severe than any other chemical used in the pulp manufacture, and owing to this solvent action the fibres are rendered soft and pliable. Although paper makers endeavour to graduate the proportion of caustic to wood so that a comparatively high yield of pulp will be obtained, yet, as a matter of fact, experience has shown that it is impossible to obtain a pulp which will compete in bleaching properties with the sulphite pulps, and, at the same time, will compare favourably with the sulphite methods in point also of yield. Of the three above mentioned processes the caustic one yields the lowest quantity of pulp from unit measure of wood. It has been found by exhaustive trial that 124 kilos of air dry pulp can be obtained from 1 cubic metre of round logs. (Hennefeld). 273 lbs. of air dry pulp are therefore obtained from 33·3 c. ft. of piled wood or 1·171 cubic fathoms of wood are required to yield one ton of air dry pulp containing 10 % of moisture.

In every wood pulp factory a certain proportion of the product ranks as second quality. The refuse from the wood preparing department and the knots, etc., from the pulp strainers, etc., are included. It has been found that about 12 % of the above yield consists of second quality.

THE SULPHATE PROCESS.

he pure caustic lye, the liquors used in this process do not same solvent power on the cellulose. The liquor is of a complex nature. Its composition varies, but it consists of a mixture of caustic, sulphide and sulphate of soda, with tities of common salt and carbonate of soda. The wood is a similar way as in the caustic method.

generally, the sulphate process is more difficult to realise perfect working order than the caustic one. The prepara- "melt" or mixture of carbonate and sulphide of soda with re of sulphate of soda, is placed under the control of experi- men and carefully supervised by the chemist. If the soda properly prepared, that is to say, if it contains the proper of sulphide and carbonate of soda, the liquors obtained from sticising with lime, act on the incrusting materials of the st as readily as pure caustic, and quite as effectually, pro- lp, which, compared with that from the caustic method, is onger, and usually brighter in appearance. Indeed, it is t in respect to certain paper making qualities this sulphate idway between pure caustic pulp and the ordinary brands of lphite pulp.

cess was introduced by Dahl in 1883, and worked on the y him. One great objection to its use in this country is the smell emitted from the charge of pulp and lye when the the boilers is blown off. Unless adequate means are prevent this odour from escaping into the atmosphere the actically speaking, cannot be worked with advantage by ers in this country.

l of pulp by this process from pine wood is greater than that ustic method. Hennefeld found that one cubic metre of ave on an average 145 kilos. of air dry pulp of which 9 % quality. This result adapted to English practice gives a n of 1·147 cubic fathoms of pulp wood per ton of air dry

THE SULPHITE PROCESSES.

known that the yield obtained by the different sulphite he highest of all, but many conflicting statements have been ding it. Notwithstanding, many methods are at work in America, employing bisulphite of lime and magnesia, the yield of pulp from wood has been proved by very careful to be substantially uniform whatever process is employed, ay, a certain sort of wood will yield the same quantity of er it is prepared with bisulphite of lime or magnesia. These ave practically no solvent action on cellulose, and in virtue highest possible amount of fibre is obtained from unit weight

culty in arriving at comparable figures probably lies in the the nature of the wood itself; whether it is old or young, the nature of the climate where it is grown. In addition to t that the wood requires more careful preparation for the cesses, if a high-class pulp is required, accounts, it may be, on in the different statements regarding the yield. The ng and waste, together with the rejection in some cases of s of the timber, probably affects the returns. In high class he wood is subjected to a most exhaustive system of selec- aning, the different qualities being worked up by themselves, cial brands of first, second, third, and even fourth quality

ecently published would seem to point out that taking every- onsideration the aggregate yield varies considerably in differ- For example, at the Cellulose Factory of Weesenburgh, g, in Saxony, one cubic metre of piled logs yielded 140 kilos. ulp, whilst at a South German work the yield obtained was from the same quantity of pine wood. Other data from give the yield as being lower than the last named, and in it is doubtless higher. The latter corresponds to the best d adapting it to English figures, 1·067 cubic fathoms of pine quired to yield one ton of air dry pulp. It should be noted of this is equal to second quality and 6 % or so is third only for the commonest of brown papers.

MINIUM FRONTED BUILDING.—Sixteen storey buildings, Chicago, are in the present day of big things nothing very ry. A novel departure, however, is to be made in a building out to be erected in Chicago, the front of which will be made luminium plates, composed of an alloyof 90% aluminium, and per. The spaces between the plates and the columns of the ll be filled with fire-proof materials. Buildings more than eys high are prohibited in Chicago now, but as special been obtained sanctioning the erection of this particular

## THE GRAVIMETRIC DETERMINATION OF SULPHURIC ACID.

By M. Ripper.

WHEN the moist precipitate of barium sulphate is brought together with the filter paper into a crucible, as is now usually the practice, and dried and incinerated over a small flame, reduction of the sulphate to sulphide always takes place. The consequence of this is that on subsequently purifying the precipitate by means of hydrochloric acid, sulphuretted hydrogen is evolved and a portion of the precipitate converted into barium chloride and lost. In order to avoid this source of error the author oxidizes the ignited precipitate before purification by means of bromine water. The well washed barium sulphate and the filter paper are brought in the moist condition into the crucible, the lid put loosely on, and the whole heated until the carbon has been removed. From 5-8 drops of bromine water are then added, after cooling, until no further decolourization takes place. A small excess of bromine water is then added, together with about 10-15 c.c. of water, the crucible being then heated on the water bath for a few minutes until all the bromine has been removed. Two or three drops of hydrochloric acid are then added, the whole heated for 10 minutes, and the liquid then poured through a small filter; the precipitate in the crucible is repeatedly washed by decantation with hot water, the small filter placed in the crucible, dried and incinerated. A drop of bromine water or dilute sulphuric acid is added and the whole ignited and weighed.—*Zeit. für Anorgan Chemie.*

## THE CRESOLS AS DISINFECTANTS.

THE first question suggested by such a title is naturally: What are the cresols exactly? In order to answer this it is best to go back to the beginning and start with coal tar, the product (with coke and illuminant gas) of the dry distillation of coal. By fractional distillation this coal tar is separated into parts, having various boiling points, principally as under:

1.—A small fraction (amounting to 2 to 4 per cent. of the tar) containing what passes over at 80° C., namely ammonia, carbon bisulphide, methyl cyanide, alcohol, amylene, benzene and its homologues.

2.—The light oil; forms 6 to 8 per cent. of the tar, and includes the constituents boiling between 80° and 210° C., chiefly made up of benzene and its homologues, with some naphthalene, phenols and bases.

3.—The heavy oil, 32 to 40 per cent. of the tar; this is made up of what goes over between 210° to 400° C., and consists of naphthalene, phenols, high boiling bases, anthracene, phenanthrene, fluorene and other hydrocarbons.

The residue in the retort represents:

4.—The pitch, in quantity of from 50 to 55 per cent.

The heavy or creosote oil on cooling deposits solid naphthalene; the separated oil is treated with concentrated soda lye, the insoluble part separated from the dissolved sodium phenol, and the latter decomposed by sulphuric, carbonic or sulphurous acid. Crude carbolic acid rises to the surface of the solution of sodium sulphate, carbonate, or sulphite. By fractional distillation of this crude acid between 185° and 205° C., cresols are obtained which appear to consist of a mixture of the so-called ortho, and para-cresol, and have the general formula $C_6H_4CH_3OH$, from which it will be seen that they are carbolic acid, or phenol, ($C_6H_5OH$), in which one hydrogen atom is replaced by a methyl group $CH_3$. What a difference in some physical properties this replacement of an atom by a group makes we shall see presently.

Ortho-cresol, or orthotoluidine, melts at 31° C., and boils at 185° to 186° C.; meta-cresol is a thick liquid that even at 80° does not solidify, and boils at 195° to 200° C.; para-cresol occurs in colourless prisms, melting at 36° C., and boiling at 198° C. They are all practically insoluble in water.

The second question then arises, how came these insoluble cresols to be employed as disinfectants?

In the first place, attention was arrested by the fact that crude carbolic acid made soluble by the action of sulphuric acid surpassed in germicidal power an equally strong solution of pure phenol, and in the second the unmistakable and superior activity of creolin, though this was free from carbolic acid, led to the conclusion that its antiseptic virtues must depend upon some higher homologues of phenol. The correctness of this view was established by the classical researches of Fraenkel on "The Disinfectant Properties of the Cresols." It is also noteworthy that he found the activity of a mixture of these isomeric bodies to increase, in a multiple ratio, on that of solutions of the simple substances.

Being, however, insoluble in water these cresols had been for some time neglected and made little or no use of until the idea was put to a practical test of combining them with resin soap, as in the preparation

(creolin) already mentioned, by which finely divided emulsions of the disinfectant compounds were made possible and found to exhibit the characteristically powerful germicidal powers of the cresols.

These preparations were, however, only emulsions, and it was believed that if the cresols would be adopted for use in a soluble form the activity and advantages of such a solution over a mere suspension would be easily demonstrable. This turned out to be the case when lysol, the ideal soluble disinfectant, was devised.

Lysol, which is obtained by dissolving in fat, and subsequently saponifying with the addition of alcohol, the fraction of tar oil which boils between 190° and 200° C., is a brown, oily-looking clear liquid, with a feebly aromatic creosote-like odour. It contains 50 per cent. of cresols, and is miscible with water to a clear, saponaceous, frothing liquid; it also forms clear solutions with alcohol, petroleum, or benzene, chloroform, carbon bisulphide, and glycerine.

What then are the essentials of a perfect, an ideal antiseptic? They may be briefly stated as follows:

1.—It must be soluble in water, and ought to be clearly so.

2.—It must arrest the development of pathogenic bacteria, even in very dilute solutions, and after a comparatively brief period of action.

3.—It must be harmless, that is non-poisonous and non-corrosive.

4.—It must not be too expensive.

Let us see how lysol meets these requirements.

The property of solubility in water has given the preparation its name. It forms clear mixtures at once, in every proportion and at all temperatures, with distilled water, or ordinary well-water not too rich in chalk. With spring or tap water, with a heavy content of calcium, a turbidity (arising from the saponification of the lime, and therefore not an emulsion) is produced, which varies in intensity according to the proportion of chalk, and increases after prolonged standing, but which, as the disinfectant constituents remain in solution, in no way prejudices its bactericidal action. It must, however, be admitted that this turbidity is in many respects (*e. g.* for the immersion of instruments) a slight drawback, and therefore it is recommended, where only a water rich in calcium is obtainable, to prepare the solution as wanted, and except in cases of absolute necessity to avoid very dilute solutions (½ per cent., ⅓ per cent.) in which the turbidity is more marked

The mixture possesses—and therein lies a prominent advantage of lysol—the property of a saponaceous solution which renders the use of a special soap in surgery quite unnecessary. The generally complicated processes of cleaning and disinfecting the area of operation are completed in a single act, viz.: an energetic brushing with the solution of lysol. It acts in a manner equal to the best soap as an excellent cleaning agent, which removes all dirt, fatty or resinous spots, and so forth, from the skin as well as from the surroundings, linen, instruments, and the like.

In the course of these proceedings the hands, instruments, and ligatures assume a smooth soapy feeling that may sometimes be unpleasant to the operator in the handling of small instruments, or the tying of fine and short threads. In order to avoid this the hands may be rinsed for a few seconds with sterilized water, or they and the field of operation may be dried with a sterilized towel.

With respect to the second essential of the ideal antiseptic, viz.: a powerful disinfectant action, there is more than sufficient evidence that lysol will not fall short in that. It has been established theoretically and practically, by the investigations of Gerlach, Schottelius, and Simmonds, who tried it in nearly all circumstances, including the putridity of faeces, and found it active and prompt in arresting the development of micro-organisms Cramer, Wehmer, Michelsen, and Haenel, recommended it for surgery and gynæcology, Lemke and Straube for veterinary purposes.

## THE FIXATION OF THE NITROGEN OF AMMONIA BY STRAW.

By M. de Vogne.

THE ammoniacal liquors of the gas works of Cosne contain on the average 13 grms. of ammonia per litre, 9 of which are combined with carbonic acid and 4 with sulphur, cyanogen and other substances, the specification of which is of no value for our present purpose. They also contain a tarry substance.

Used for watering fields, at the rate of 25 cubic metres per hectare (92 gals. per acre), these liquors produced a considerable increase in yield.

In the hope of being able to store their nitrogen during the seasons when watering is impossible, and obtaining it in a form suitable for application to cereals, the experiment of mixing it with straw, and thus obtaining an artificial manure, was tried.

A heap was formed of 2,500 kilos. of straw and dry husks, soaked with 9,000 litres of ammoniacal liquor, and arrangements made to measure the temperature and analyse the gaseous products. At the same time a laboratory experiment was made in which the same conditions were reproduced, and the course of the action thus studie closely. To commence with a violent oxidation was produced, panied by a great elevation of temperature, carbonic acid an vapour of water being disengaged. The action in the heap of was most intense on the thirteenth day. The gas evolved then co 32 per cent. of carbonic acid, and only traces of oxygen; the te ture was above 100°. The liquid which drained away from th and which was thrown back on to it every day was very dark co on treatment with acids, a flocculent black substance was prec which was soluble in potash and presented all the appearance black substance from animal manure.

After the thirteenth day the reaction diminished in intensity, disengagement of carbonic acid continued up to the end experiment, which was stopped after four and a half months heap had then diminished in weight by 4,200 kilos., or rath than one-third; it appeared like half fermented animal man was used for an experimental field, comparatively with an equal of animal manure.

A sample taken on the thirty-third day of the operation was a by M. Schloesing, and had the following composition:—

| | |
|---|---|
| Water | 80 |
| Dry matter | 20 |

In 100 grms. of the fresh manure

Nitrogen:—

| | | |
|---|---|---|
| As ammonia lost on drying in the cold | 67·16 | m'grm. |
| As ammonia retained in combination | 129·72 | " |
| Organic nitrogen | 483·31 | " |
| | 680·19 | m'grm. |

The best natural manure only contains 400-500 m'grms., so the thirty-third day the artificial manure was stronger than the At the close of the operation it was calculated that only one-hal initial nitrogen had been fixed; it will, however, without do possible to diminish this loss considerably by modifying the dur the fermentation and the intensity of the re-action.

The interesting feature of the experiment is the re-action takin between the ammonium carbonate derived from the coal and the matter of the straw. The complex black substance of the man been thus produced and has combined with a portion of the am the carbonic acid being liberated along with that produced by t oxidation of the straw.

From the agricultural point of view it is not less interesting to the advantage which can be gained from the use of ammoniacal in this eminently convenient form at farms situated near gas w

*Compt. Ren*

# Correspondence.

**** We do not hold ourselves responsible for the opinions expre our correspondents.*

### *ANSWERS TO CORRESPONDENTS.*

J. C. R.—Thanks for your communication.

T. G. L. Co.—The matter has received our attention.

W. C. B—We trust you have received the back numbers safely.

E. L. P.—See this week's issue.

G. G. B.—The Greenbank Alkali Co., St. Helens, we believe.

W. A.—It will be sent as usual.

K. & Sons.—We shall be pleased to hear from you again. We should advi give it a trial.

S. M. L. & Co.—They have been sent on. A good many of them are out n

D. & W.—We trust the information was sufficient. We could not give you such short notice.

K. S. (Berlin.)—Thanks for your letter. We are sorry you could not d suggested. We think a trial would have given satisfaction.

E. T.—Your last letter certainly throws quite another aspect on the matter all things into consideration, we should think it would include wood s is specified that it is to be used as a solvent for that purpose We shou you to write to the Customs Office, as these terms are often used w and suffer very peculiar constructions when it is convenient

A. E. R.—It is used somewhat still, we believe, but we are not aware o who is working or acting as agents for the process.

### QUERY: VITRIOL RECTIFICATION.

A correspondent sends us the following question: "Can glas be depended on for rectifying sulphuric acid up to 97% stren failing a platinum plant is the old system of glass retorts What about Chance's continuous process?"

E.

## NNER MOND'S MAGNESIA CHLORINE PROCESS.

*( To the Editor of the Chemical Trade Journal. )*

-In the column of more or less interesting matter, under the of "A new departure in the alkali trade," which appeared in es, of the 21st inst., there is, I am afraid, on the part of the f the article, and others, a good deal of hopeful anticipation an actual certainty. But if Mr. Mond's scheme has really been ard as in any way a practical solution of the present chloride of difficulty in the ammonia process, which it evidently claims to be, lined to think it will end in disappointment; and this I say not of discouragement in attacking the difficulty, but because, on the t, Mr. Mond's plan is stamped with well-known difficulties in which no amount of contrivance in detail will surmount; I admit Mr. Mond to be clever at detail-contrivances.

rticle in question is no doubt interesting to some of the *Times'* and to a section of them will appear wonderful; but what is wn, *i.e.*, understood, is always considered wonderful. Half a es not usually end satisfactorily; and but a very brief and skippy made of the part relative to the novelty or to the chemical of magnesium oxide, chloride of ammonium, hydrochloric acid, er—and the weak parts in dechloridising the magnesium are hed upon Variation of temperature will upset many of their ons.

ct is, that the serious break-down will be in the use of magnesia nother oxide might be better), which does not, I contend, by ns act as regularly as it would appear to do from the article to; and therefore it is better before arriving at any settled on to watch the process in its evolution commercially, the end will probably be self-annihilation.

I am, etc.,

ONE WHO KNOWS.

er 24th. 1892.

# NOTICES.

## LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of

THE CHEMICAL TRADE JOURNAL

From

MR. JOHN HEYWOOD,

2, Amen Corner,

Paternoster Row, E.C.,

ual trade terms.

## FOREIGN REMITTANCES.

g to the inconvenience created by the various ways in which subscriptions are remitted, we respectfully beg to inform ers that a *Crossed* MONEY ORDER is the most satisfactory of remitting, both for them and ourselves. In the case of a Order, a letter advising us of same should always be sent, e, owing to post-office formalities, much delay in tracing and edging foreign remittances is inevitably entailed in this country

# Trade Notes.

TRIATIC ACID PLANT.—A large plant for the manufacture of oric acid is being constructed at Milwaukee, Wis., and will e in operation. The plant is very extensive and is valued at About 40 men will be employed to operate the plant.

ARATION OF FERRIC SALTS.—A patent has recently been at by M. L. Paillard for the preparation of persalts of iron to salts, by blowing into a mixture of the proto salts sulphuric acid vapours, thus oxidising the salts into persulphate of iron e, as the case may be.

ES OF PARLIAMENT.—Our contemporary *Industries* arranged out a special number dealing with the ventilating, heating, and drainage appointments of the Houses of Parliament on inst., but owing to some important alterations which are ade in the lighting arrangements of the House of Commons, rstand that this special number will not be published till the ember.

ING PAPER.—A mineral called antonite which is found in a in masses varying from grey to yellow in colour, when treated lrochloric acid to dissolve out all impurities and well washed er to free it from acid, is mixed with glue, starch, or other bodies and used in the same way that ordinary finishing materials are employed. The paper or fabric thus sized can be sent through the callenders to give it a gloss. When used with paper pulp the resulting product has a particularly pleasing silky appearance.

INDUSTRIAL PROGRESS OF JAPAN.—There have been many indications of late that Japan is developing its industries, and in many of them becoming self-supporting, but such advance brings of necessity a falling off in trade in some quarter, and that quarter has unfortunately been Great Britain. According to the report of Her Majesty's Chargé d'Affairs at Tokio, British trade now represents only 37 per cent. of the foreign trade of Japan, as against 41 per cent. in 1890

SOCIETY OF CHEMICAL INDUSTRY, *Manchester Section.*—An address by the chairman of the Manchester Section of the Society, and of the Chemical Section of the Manchester Chamber of Commerce, will be given on Friday next, on the recent developments affecting the Chemical Industries of this country. *A discussion is invited.* Also a paper will be read by Charles Dreyfus, on the "Recovery of Bye-products from Coke Ovens." At the December meeting, Dr. Carl Otto Weber will read a paper on "Cop Dyeing."

ARTIFICIAL STONE.—The preparation of artificial stone has recently been made the subject of a patent by Mr. W. Schleuning, of Heidelberg. The soda residues from the Leblanc process after being subjected to the decomposing action of the atmosphere, and then lixiviated, are mixed with cement obtained from the residues obtained from Chances' desulphurising process; water, powdered clay, and slaked lime are then added, and the mixture moulded by pressure. If it is not certain that the residues have been fully decomposed by the atmosphere it is as well to add a small quantity of pyrites.

COAL CONTRACTS.—Tenders for the supply of coal are being invited by the P and O. Steamer Co. The quantity to be supplied will be between 50,000 and 100,000 tons of steam coal from the South Wales and north country coalfields, to be supplied to their steamers in the Victoria and Royal Albert Docks, London, during the year 1893. Contractors may tender, as usual, at their option for a fixed proportion from either South Wales or the north country collieries, but it is mentioned that a tender for South Wales coal exclusively would receive special attention.

COFFEE CULTIVATION IN GUATEMALA.—During the year 1891 about 52,197,853 lbs. of coffee were exported from Guatemala, which were valued at £2,185,397., being an increase in value of £49,654. over the exports of 1890. It is anticipated that the crop this year will be larger than ever, as the climatic conditions have been exceptionally favourable. There is evidently a good field for enterprising English capitalists in the coffee industry of Central America, and as the number of private individuals who have made fortunes is very large, whilst the German element at present prevails, about 20 per cent. of the owners of coffee estates being Germans, as is the case with the majority of the industries in Guatemala.

CANADIAN ANTHRACITE.—The mines of the Canadian Anhtracite Coal Company are developing fast at Canmore and Anthracite, near Banff, on the Canadian Pacific Railway. On account of the great discoveries now being made in the Kootenay country in British Columbia a demand for coke is arising. The common coal makes excellent coke for smelting and metal manufacturing purposes. The analysis of the coal made at the Geological Museum in Ottawa, controlled by the Government of Canada, is as follows:—

| | |
|---|---|
| Hygroscopic water | 1·04 |
| Volatile combustile matter | 9·15 |
| Fixed carbon | 87·18 |
| Ash | 2·63 |

The coal is largely used on the Canadian Pacific Railway, both in the engines and for heating the passenger trains. It is also likely to be used in the Canadian Pacific steamers running from Vancouver, B. C., to Japan.

A NEW OIL LAUNCH.—The latest thing in the way of oil launches has recently been tried at Portsmouth, where a small vessel fitted with a new type of oil engine, which is the patent of Mr. Roots, has recently been launched. The engine has two cylinders and as the hot air is drawn into one of the cylinders, a small drop of paraffin oil is mixed with it, passing forward through the evaporiser which converts it into gas. On the upstroke of the piston, the gas is forced through a chamber in which hot tubes are placed, which explode the gas driving forward the piston. While this is going on in one cylinder the other is compressing, the action going on alternately. The engine is of 3 B.H.P. and consumes about one pint of oil per horse power per hour. In its recent trial the launch was propelled at a good speed and ran steadily. The engine can be started from the cold in from 7 to 10 minutes. Two of the chief advantages which this engine possesses are that in the first place when working no smoke is given off, the combustion of the oil being complete, and secondly, the whole of the driving machinery is very compact and simple, occupying but a small space in the stern of the launch, leaving ample room for the use of the same by passengers, or for other purposes.

## THE COAL BEDS OF VANCOUVER.

THE United States Consul at Victoria, in a recent report on British Columbia, mentions that coal is one of the chief products of the province, the export in 1888 and the three succeeding years having been two-fifths of the total exports. Both anthracite and bituminous coal have been found in many parts of the province. Veins of lignite exist near New Westminster and along the Thompson and Skeena rivers; bituminous coal has been found near Kamloops, and deposits of semi-anthracite of good quality are being worked in the East Kootenay district. In Graham Island, one of the Queen Charlotte Islands, "a compact and brilliant anthracite" is being worked by companies of American and Victorian capitalists, but it is on Vancouver Island that coal mining has been most developed. The coalfields there are described as of unlimited extent, and new discoveries are being made every year. At present the deposits worked are in the east coast, along Georgia Straits. Nanaimo is the centre of the coal trade of the island, and four large collieries are working near it. The veins generally lie horizontally, and vary in thickness from 2½ft. to 11ft. The working is by vertical shafts from 200ft. to 690ft. in depth; the class of coal obtained is semi-bituminous, of fine quality; it has higher heating power and bears transportation better than most of the coals found west of the Rocky Mountains. The statistics given in the report show that while the total production in 1874 was 81,000 tons, it was 394,000 tons in 1884, and 1,029,097 tons in 1891. San Francisco and the other Californian ports have always remained the best market for Vancouver coal, but it goes as well to Arizona, New Mexico, Oregon, the Sandwich Islands, Mexico, China and Japan. Various great railway and steamship companies use it, also British and other war-vessels.

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

The Benzol market continues decidly flat, and while 90s. is worth about 1s. 7d., 50-90s. are only value for 1s 3d. to 1s. 3½d. There is but little inclination on the part of buyers to enter into engagements for forward delivery. The price of pitch is well maintained. Anthracene remains neglected. There still seems some chance that tar distillers, or at least some of them, will come to an understanding with respect to the future manipulation of the article. To-day's values are 8d. to 9d. for 30% A. and 6d. to 6½d. for 30% B. The price for 20% Alizarine has been reduced to 8d. net.

A better feeling prevails in the Sulphate of Ammonia market, produced principally by the tendency to advance in nitrate, (now 9s.). Both consumers and speculators are displaying considerable anxiety as to the near future, and seem more inclined to pay market values. Leith is quoted at £10. while Hull and Liverpool prices range from £10. 1s. 3d. to £10. 2s. 6d. Beckton stands at £10. 2s. 6d. and outside London makes at £10. 1s. 3d.

## REPORT ON MANURE MATERIAL.

There has been greater activity in ammoniacal material at advanced prices, but the market for phosphates continues very dull, without any improvement in values.

Florida phosphate rock, 75/80%, continues to offer at 8½d. per unit, in cargoes c.i.f. to U.K., but without inducing business, and probably ¼d. less would be accepted if bid. The value c.i.f. Continent is probably 8¾d. per unit. Peace River rock may be had at 7d. per unit, and there are sellers of hot-air dried Bull River rock at 6½d per unit, c.i.f. to U.K. There is no improvement in the market for River Plate bone ash, there being sellers at £3 5s. on 70% nett Hamburg terms, but no buyers at that figure.

A large mixed River Plate cargo of bones and bone ash has been sold, it is understood, at £4. 2s. 6d. for the bones, and £3. on 70% for the ash; but actual figures have not transpired. For anything afloat or for shipment £4. 5s. probably nearest value. Business has been done in Kurrachee bones at £4. ex quay, for shipment; and a large business in Bombay bone meal at £4. up to £4. 1s. 3d. per ton ex quay Liverpool and Glasgow, October-December steamer shipment. £4. 5s. ex quay Liverpool paid for a parcel of good hard charring bones.

On receipt of figures a week ago indicating largely reduced shipments of Nitrate during the month of October, and probable large reduction of the loadings for November, the market experienced a sharp advance in prices. The value of due cargoes has advanced from 8s. 4½d. to 8s. 10½d. per cwt., and the closing value may be quoted 9s. for anything of handy size and fair test. September-October shipments have been dealt in at 9s. up to 9s. 3d. per cwt., and November's at up to 9s. 3¼d. On spot there is nothing good to be had at under 9s., and for refined 9s. 3d. is required.

Nothing special to report in miscellaneous material, but rather more enquiry.

## THE METAL MARKETS.

LONDON, Wednesday.—Pig iron quiet. Scotch warrants closed at 41s. 1d. cash. Middlesbrough and Hematite quotations nominal. Copper firm: Chili bars, G.O.B.'s and G.M.B.'s closed at £45. 15s. cash, and £46. 5s to £46. 12s. 6d. three months. Tin steady: Straits closed at £94. 12s. 6d. to £95. 2s. 6d. cash, and £95. 2s. 6d. to £96. 12s. 6d. three months. Australian, £95 2s. 6d. cash. English ingots, £98. to £98. 10s. Lead easier: Spanish, £10. 6s. 3d. to £10 7s. 6d English, £10. 10s. to £10 12s. 6d. Silesian spelter: Ordinary, £19 Quicksilver: First hands, £6. 10s., second hands, £6. 9s. *Copper shares* quiet: Cape, $1\frac{11}{16}$ to $1\frac{13}{16}$; Copiapo 2⅛ to 2⅜; Libiola, 3⅛ to 3⅜; Mason and Barry, 2⅞ to 3; Rio Tinto, 15½ to 15⅝; Tharsis, $4\frac{9}{16}$ to $4\frac{11}{16}$; Namaqua, ⅝ to ¾; Panulcillo, ⅜ to ½.

WOLVERHAMPTON, Wednesday.—Demand for manufactured iron showed improvement in sheets for galvanising and working-up purposes, but bars and hoops quiet. Prices steady. Marked bars, £8.; common, £5. 15s.; hoops, £6. 12 6d.; tube strips, £6. Sheets, singles, were £7.; lattens, £8. Deliveries in pigs are very steady. Some consumers press for even more than their contract quantities. Prices maintained at 45s.; Northampton, 46s; Derbyshire, 48s.; Lincoln and Staffordshire (all mines). 60s.; common, 37s. 6d. coal improving; best house, 11s. to 12s. at pits.

## MISCELLANEOUS CHEMICAL MARKET.

There is no material change in the situation, affecting any of the products of the alkali trade. Upon the whole there is a fairly good all-round demand, and prices are well maintained. For bleaching powder the present spot quotation is still £7. 15s., on rails at maker's works; forward contracts being done at £7. 5s., as for some time past. Soda ash remains at $1\frac{5}{16}$d. to 1⅜d. per degree, f.o.b., for prompt delivery, and forward deliveries about $\frac{1}{16}$d. per degree lower. Caustic soda: Spot quotations are without alteration, viz., f.o.b. Tyne, 77%, £11. 15s.; f.o.b. Liverpool, 74%, £11. 5s.; 70%, £10. 5s; 60%, £9 2s. 6d; cream, 60%, £8. 17s. 6d.; 10 ton lots and upwards. Recovered sulphur, in bulk, £4. 15s., f.o.r. maker's works. Chlorate of potash is scarce, and only very little offering for prompt delivery, at 7½d. to 7¾d Chlorate of soda, 8½d. Vitriol and muriatic acids are without change. Sulphate of copper continues quiet, and business doing at £15. per ton, f.o.b. There is a firmer market for brown and grey acetates of lime for forward delivery, but the improvement has not materially affected spot values. White sugar of lead still firm at £25. 10s. per ton c.i.f. Brown sugar of lead £17. per ton, c.i.f. Nitrate of lead is in excess of requirements, and price without improvement. Refined borax, 28s. 6d. to 29s Prices remain firm, and there is a good demand for potash, caustic and carbonate, both for early and forward delivery. Yellow prussiate of potash steady at 10d per lb. White powdered arsenic selling freely at £12. 10s. nett, at Garston, etc. There is no improvement in the demand for carbolic crystals, and prices are consequently for the moment in buyers' favour. In miscellaneous chemicals for the textile trades the demand is less brisk than could be desired.

## LIVERPOOL OIL AND COLOUR MARKET.

Wednesday.

OILS.—Palm oil has been firm but quiet, sales to-day, however, have improved, prices are, Lagos £22. 10s., Accra £20. 5s., Congo £20. 15s., and Addah £20. 2s. 6d. Olive is steady with a good business passing for spot. Neapolitan is quoted £39. to £41. Candia and Messina £37 per tun. Linseed continues very steady, with a fair demand at 19s. 6d. to 20s. per cwt. American quiet at 20s. to 24s. per cwt. Castor oil is stronger generally, good seconds Calcutta being quoted at 2½d. per lb. with a fair demand, and first pressure French 2⅝ per lb. Tallow is firm but the enquiry is limited. Resin common has advanced again to 4s. per cwt., and is firmly held at this figure. There is a fair enquiry. Spirits of Turpentine are stronger, 23s. per cwt.

ed, and sellers are firm at the price. Petroleum is slightly merican being quoted 5¼d. to 6¼d. according to quality. efined 4½d. to 4⅝d. per gallon.

URS are unaltered. Ochres: Oxfordshire, common, medium, £12., best, £15.; Derbyshire, common, dium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devon- s. to 55s. White lead, red lead, and oxide of zinc d. Venetian red, £6. 10s. to £10. Cobalt: Prepared s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, nest, £20.

## THE LIVERPOOL MINERAL MARKET.

mness reported last week has been fairly maintained. Man- Arrivals have fallen off, and stocks are reduced, and higher re asked. Borate, 7d. per lb.; sulphate, £21. 10s.; 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., Magnesite (raw lump) continues quiet. Raw ground ., and calcined £12. 10s. Bauxite (Irish Hill brand), brisk, and sales are being done at full prices; lump 20s., 16s., and thirds 12s. French chalk: Arrivals have fallen st the demand is brisk and prices are firm. "Angel White" d "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; rfine, 105s. Barytes: Carbonate, best lump, none offering; to 80s.; whilst finest white sulphate is in demand. "Angel No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone on ore continues to be very freely offered, and prices are easy; rish, and Cumberland easier. Santander and manganiferous Emerystone: Best quality inquired for. No. 1 lump, £5. 10s. smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; ulpable ground, £7.; "Emerald" ground, 80s. Scheelite, tungstate of soda, and tungsten metal in good demand, and firm. Chrome ore: Inquiry is fairly good, particularly for spot, nands full figures. Antimony ore steady at £12., and metal £44. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. 10s. Calamine strontia sulphate (celestine) quiet. Limespar especially for English manufactured; old G.G.B. brand in at 50s. (ground). Felspar quiet. Fluorspar: Best quality Ferro-manganese steady, and prices are unchanged. Plum- panish, £5.; best Ceylon lump at last quotations; Italian and n, £4. to £12. per ton. "Founders," £5. to £6.; Black- Mineraline," £10. French sand, 20s. to 22s. 6d. Ground 45. to £50. China clay steady, common, 18s. 6d.; good 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore iron) steady; finest quality 22s. to 23s.

## TYNE CHEMICAL REPORT.

TUESDAY.

emical trade here is unaltered. Business quiet. Bleaching £7. 10s. per ton nett, 77% caustic soda at £11. 15s. per ton ulphur firmer, at £4. 17s. 6d. and £5. per ton.

ing powder, softs, £7. 10s. per ton nett; hards, £7. 15s. caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. 5s. recovered sulphur, 2 cwt. bags, £4. 17s. 6d. and £5. soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; kali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw. £3. 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per ton; soda in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, 6d. per ton nett weight; chlorate of potash, 7d. per lb. less rl hardening, £3. 10s. per ton nett; pure white sulphate of £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of £7. 10s. per ton; nitrate of baryta crystals, £19. per ton; £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate na, £28. 10s. per ton; aluminate of soda, £33. 10s. per lrate of barium, £11. per ton.

Durham salt, 9s. 6d. to 10s. per ton f o.b Tees.

on the whole are rather firmer to-day, and altogether there is a tone in the trade. Shipments are heavy. Northumbrian s. 6d. per ton; gas coals, 8s. to 8s. 6d.; small steam coals l, 3s. 6d. to 4s. per ton; coke firm at 15s. to 16s. per ton; d coals unaltered.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The quotation for sulphate of ammonia to-day must stand as it did a week ago, but with the proviso that the general feeling is if anything weaker. Reports from the Continent to this market have it that very low offers have been made for prompt and forward, but that the disposition to buy is very feeble.

Solid paraffins are stated below, still at only the nominal halfpenny reduction, but it seems certain that some makers are now taking less when they can get the chance, for buying is not at all eager. Deliveries of burning oil continue very large, and consumption appears to be extending, even to the exclusion of gas, where the latter is dear, or bad, or both.

In the ordinary chemicals there is no stir. Bleaching powder is now back to the normal figure. Chlorate of potash is dearer, also sulphate of copper and nitrate of soda. All the talk in chemical circles here centres in the new alkali departure of Brunner, Mond, and Co., and the varying comments thereon. Owing to certain recent local experiences, people are more than commonly sceptical regarding new processes, and they wait some practical commercial test before making sure either of success or failure.

Chief prices current are:—Soda crystals, £2. 17s. 6d. nett Tyne; alum in lump, £5. 10s., nett Glasgow; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; bleaching powder, £7. 10s. nett Tyne; saltcake, 35s.; borax, English refined, £30., and boracic acid, £37. 10s. nett, Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 7½d., less 5% Liverpool; nitrate of soda, 8s. 9d. to 8s. 10½d.; sulphate of ammonia, £9 18s. 9d. to £10. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £14. 10s., less 5% Liverpool; paraffin scale (hard), 2½d., and soft 2½d. per lb.; paraffin wax, 120°, semi-refined, 3d.; paraffin spirit (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower); ditto (lubricating), 865°, £3. to £3. 10s., 885°, £4. 10s. to £6., and 890/895°, £5 to £7. Week's imports of raw sugar at Greenock were 12,258 bags.

## THE COPPER MARKET.

Messrs. Harrington and Co., in the report dated Liverpool, 18th October, 1892, state:—

The Chili Charters for the past fortnight are advised as 350 tons, and Exchange 20¼d. The total Charters since 1st January are 17,150 tons.

Since our last issue, when G.M.B.'s and G.O.B.'s were finally quoted £44. 13s. 9d. cash and £45. 2s. 6d. three months, values have improved, the lowest price accepted was on the 5th, when £44. 7s. 6d. and £44. 17s. 6d. were the opening quotations, but market on same day closed at £44. 13s. 9d. and £45. 3s. 9d. respectively. The highest price obtained was yesterday, £46. 2s. 6d. cash and £46. 12s. 6d. three months, with business amounting to 2,000 tons during the day, and about 9,800 tons sold since our last report. To-day we close easier with sellers of cash at £45. 17s. 6d., and three months at £46. 6s. 3d.

At Swansea on Saturday, the 15th inst., considerable surprise was created by the announcement that the important firm of Pascoe, Grenfell and Sons, who carry on large copper and spelter works, contemplated the voluntarily winding up of the affairs of the Company. At the works on Saturday afternoon several members of the Grenfell family, with the workpeople, assembled, when Mr. Grenfell made a statement in reference to the closing of the works. The firm has been in existence a century. Mr. Grenfell told the workpeople that the great and increasing competition which was going on in all departments of trade, and the opening up of more profitable sources of investment, was the reason of the important step upon which he and the other members of the Grenfell family had decided. Upwards of seven hundred people are employed, and a hope is expressed that by the formation of a syndicate the works may be kept open.

The total stocks in Liverpool, Swansea, London, and Havre show a decrease of 972 tons for the fortnight.

The stocks include about 3,200 tons of copper sold, but not yet delivered to smelters.

The visible supply shows a decrease of 1,854 tons for the fortnight, and the total deliveries for the fortnight are 4,175 tons.

The present stock of English G.M.B.'s in warehouse, Liverpool and Swansea, is 2,220 tons, against 2,506 tons on the 3rd inst. The delivery

in Liverpool and Swansea was 363 tons, but 77 tons being added to the Swansea and Liverpool stock, makes a decrease of 286 tons for the fortnight.

Refined and manufactured sorts are firm Quotations being:—Tough cake £49. 5s. to £49. 15s., best select £50. 10s. to £51., Indian sheets £53., strong sheets £58., and yellow metal sheets 5d. per lb.

The sales of furnace material comprise—at Liverpool: 67 tons Argentiferous Chili regulus, on private terms; 600 tons ordinary Montana Matte, to arrive, at 9s 3d; 300 tons Mason's precipitate, on private terms = to about 9s.; 70 tons Spanish precipitate, to arrive, at 9s. 1½d.; 40 tons Portuguese precipitate, to arrive, at 9s. 3d.; 50 tons Seville precipitate, to arrive, at 9s 6d.; 75 tons English precipitate, at 9s 6d.; 800 tons Chili ore, to arrive, at 8s. 6d.; and 200 tons Portuguese ore, to arrive, at 8s. per unit. At Swansea: 550 tons Chili regulus, to arrive, at 9s; 40 tons Australian ore, at 8s. 4d.; 800 tons Quebrada ore, spot, sold at 7s. 10½d.; and a cargo Quebrada ore, to arrive, at 8s. 1½d. per unit.

## New Companies.

**Eccleston Oil Refining Co., Ltd** —Capital £2,000. in £10. shares, to carry on the business of oil refining in all its branches. Registered without special articles of association.

**French Chalk Co, Ltd.**—Capital £4,000. in £1. shares. This company has been formed to execute an agreement for working certain mines, situated in Ireland and elsewhere in the United Kingdom, and to prepare, manufacture and sell, French chalk, or soap stone, etc. Registered without special articles of association.

**Guarantee Paint Manufacturing Co., Ltd.**—Capital £10,000. in £5. shares. This company has been registered to carry out an agreement for the carrying on of the business of manufacturers of lead and zinc, paints, colours, varnishes, etc. The subscribers to the memorandum of association are:—J. B. Faithfull, 111, Comeragh Road, Kensington, W., merchant; R. H. Mercer, Putney, paint manufacturer; W. Boundy, Billiter Square Buildings, E.C., merchant; T. Simpson, 48, Nightingale Lane, S.W., director in E. Kesterton and Co., Limited; T. Scribner, Legal and General Chambers, 9 Fleet-street, E C., accountant; H. A. Borgers, 4, Newgate street, E.C., colour merchant; E. Hale, 2, Aytoun Road, Brixton, S.W., shorthand writer.

**C. T. Bainbridge and Son, Limited.**—Capital £25,000. in £10. shares. The object of this company is to carry into effect an agreement between Mr. M. Fryer and the company, to acquire and carry on the paper mills at Yarm, Durham, and elsewhere, hitherto carried on under the style of C. T. Bainbridge and Son, and M. Fryer and Co, and to carry on the business of manufacturers of paper in all its branches. The subscribers to the memorandum of association are:—J. Livingstone, jun., Middlesbrough, brassfounder; J. Gilchrist, Middlesbrough, accountant; S. F. Thompson, Middlesbrough, solicitor; M. Fryer, Middlesbrough, paper manufacturer; T. Chapman, Middlesbrough, gentleman; E. Thompson, Middlesbrough, gentleman; C. Bell, Junior Carlton Club, gentleman.

## The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

### APPLICATIONS FOR LETTERS PATENT.

**Obtaining Brine from Rock Salt.** T. W. Stuart. 18,016. Oct. 10th.
**Production of Blue Green Colouring Matters of the Triphenylmethan Series.** O. Imray. 18,081. Oct. 10th.
**Removing Manganese from Pig Iron, Steel, etc.** C. D. Abel. 18,082 Oct. 10th.
**Celluloid Buckles.** A. Hennies. 18,083. Oct. 10th.
**Improved Fertilizer.** A. Macarthur. 18,129. Oct. 11th.
**Utilizing Waste Heat and Gases from Furnaces.** T. Williamson. 18,157. Oct. 11th.
**Production of Nitrogen Compounds.** A V. Newton. 18,183. Oct. 11th.
**Treating Sewage and Impure Waters.** F. P. Candy. 18,216. Oct. 12th.
**Obtaining Nitric Acid and Manganese Peroxide for Treating Manganese Nitrate.** A. Vogt and A. R. Scott. 18,232. Oct. 12th.
**Sewage Treatment.** W. Warner. 18,261. Oct. 12th.
**Production of Aluminium.** H. M. Hyndman. 18,292. Oct. 12th.
**Extracting Gold and Silver, etc., from Ores.** T. F. Barbour. 18,307. Oct. 13th.
**Manufacture of Pigments.** H. C. Standage and C. Smith. 18,346. Oct. 13th.
**Treating Textile Fibres.** A. F. B. Gomess. 18,358. Oct. 13th.
**Extracting Precious Metals from their Ores.** J. M. Stuart and J. W. Cohen. 18,495. Oct. 15th.
**Production of Crystals or Crystalline Masses.** J. Morris. 18,496. Oct. 15th.
**Burning Petroleum and Naphtha in Steam Boiler Furnaces.** H. H. Lake. 18,521. Oct. 15th.

## Gazette Notices.

### PARTNERSHIPS DISSOLVED.

J. E. Phillips and H. A. Worts, under the styles of Barry and Phillips, and Phillips and Worts, Ealing, chemists and druggists.
W. R. Baker and H. J. Pavey, under the style of Pavey and Co., Ramsgate, chemists and druggists.
J. B. Guyer and C. Shapley, under the style of Guyer and Shapley, Torquay, chemists and druggists.
W. Arkle and J. S. Arkle, under the style of W. and J. Arkle, Lancaster, chemists, druggists, oil, paint, and colour dealers.
J. Lardner and W. T. Tucker, under the style of the Northern Tallow Melting Co., York-road, King's Cross, tallow melters and merchants.

### BANKRUPTCY ACTS, 1883 and 1890.

**Receiving Order.**

Parkin, George Anthony, York, previously of Halifax, chemist and druggist.

**Adjudication.**

Parkin, George Anthony, York, previously of Halifax, chemist and druggist.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending October 15th.*

**Acetate of Lime—**
U. States, 2,189 pkgs. A. Frey & Co., Ltd.

**Acetic Acid—**
Holland, 40 pkgs. A. & M. Zimmermann
" 110 J. Owen
" 200 Beresford & Co.

**Acetone—**
Holland, 12 pkgs. A. & M. Zimmermann

**Alkali—**
France, 100 c. Arnati & Harrison
Belgium, 187 Union L. Co., Ltd.

**Alum—**
Holland, 11 pkgs. Ohlenschlager Bros.

**Aluminium—**
Belgium, 10 c. Major & Field

**Antimony—**
Australia, 7 t. Welch, Perrin, & Co.
France, 20 H. R. Merton & Co.
" 4 Vivian, Younger, & Co.
" 1 W. J. Crook
Japan, 10 R. Warner & Co., Ltd.

**Asbestos—**
Italy, £40 Tingle, Jacobs, & Co.
Canada, 450 W. Byford
U. States, 475 "
Canada, 130 Bolling & Lowe

**Barytes—**
Germany, 110 cks. W. Harrison & Co.
Italy, 10 pkgs. J. Knill & Co.
Belgium, 34 J. L. Lyon & Co.
Germany, 23 W. Pope & Co.
" 32 Prop. Scott's Wf.

**Boracic Acid—**
Italy, 46 pkgs. J. Puddy & Co.

**Bromine—**
Germany, 42 pkgs. A. & M. Zimmermann

**Caoutchouc—**
France, 5 c. Mory & Co.
Zanzibar, 73 Clarke & Smith
E. Indies, 459 L. & I. D. Jt. Co.
Rangoon, 150 Marshall & French
France, 97 L. & I. D. Jt. Co.
Zanzibar, 38 "
" 9 Hale & Son
E. Indies, 24 J. Barber & Co.
France, 16 Flageollet & Co.
Zanzibar, 39 Wrightson & Son
" 11 A. Von Glehn & Co.
Melbourne, 7 Hernu, Peron, & Co.
Germany, 20 Prop. Bull Wf.
" 30 Wallace Bros.
Ibo, 21 "
E. Indies, 300 Huttenbach & Co.
Zanzibar, 14 Beriro & Co.

**Castor Oil—**
Belgium, 5 brls. Fuerst Bros.
France, 60 Burrell & Co.
" 11 Beresford & Co.
" 58 pkgs. J. Greig
" 40 Lucas & Spencer's Wf.
" 45 Windschuegl & Co.

**Caustic Potash—**
France, 100 c. F. W. Berk & Co., Ld.

**Chemicals** *(otherwise undescribed)*
Germany, £11 B. & N. Wf. Co., Ltd.
" 15 4 pkgs. Phillipps & Graves
" 17 Hernu, Peron & Co.
" 5 T. H. Lee
" 18 A. & M. Zimmermann
" 1 L. & N. W. Ry. Co.
" 6 W. Burton & Sons
Belgium, 8 T. H. Lee
France, 10 J. Burnett & Sons

**Cobalt Ore—**
France, 2 t. J. Burnett & Sons

**Cream of Tartar—**
Italy, 22 pkgs. Howards & Sons
France, 16 B & F. Wf. Co., Ltd.
" 8 E. W. Carling & Co.
" 7 W. C. Bacon & Co.
Holland, 65 Middleton & Co.
France, 7 Ross & Deering

**Dyestuffs—**
**Argols**
Italy, 129 pkgs. Thames S. T & L Co., Ltd.
France, 50 Ross & Deering
**Cutch**
E. Indies, 300 pkgs. L & I D. Jt. Co.
**Divi Divi**
E. Indies, 220 pkgs Walker, Munsie, & Co.
**Extracts**
U. States, 100 pkgs. W. Burton & Sons
France, 131 Prop. Chambln.'s Wf.
" 75 B. & F. Wf. Co., Ltd.
" 89 Carey & Sons
Denmark, 1 A. F. White & Co.
" 1 Bailey & Leetham
Holland, 16 R. Baelz & Co.
**Gambier**
E. Indies, 548 pkgs. L. & I. D. Jt. Co.
" 218 Adamson, Gilfillan, & Co.
Germany, 829 L. & I. D. Jt. Co.
**Indigo**
E. Indies, 35 chts. G. N. Rly.
" 21 Benecke, Souchay, & Co.
" 62 L. & I D. Jt. Co.
" 7 W. Brandts, Son, & Co.
" 9 Arbuthnot, Latham, & Co.
" 10 Parsons & Keith
**Naphthalene**
Germany, 28 pkgs. Flemings Oil Co.
**Saffron**
Spain, 1 pkg. Major & Field
**Sumac**
Italy, 700 pkgs. J. Kitchin, Ld.
" 698 Italo-Brit. S. N. Co.
" 150 Sellas & Sons
" 100 F. Roberts
" 100 M D Co.
" 100 Middleton S S. Wf. Co.
**Tanners' Bark**
Belgium, 34 t. Leach & Co.
" 12 Gellatly, Hankey, & Co.
**Turmeric**
E. Indies, 33 pkgs. L. & I. D. Jt. Co.
China, 200 Melchers, Runge, & Co.
E. Indies, 500 H. A. Litchfield & Co.
" 102 Ralli Bros.

**Farina—**
Holland, 100 J. Barber & Co.
" 50 J. Knill & Co.
" 250 R. G. Hall & Co.
" 20 Seaward Bros.

**French Chalk—**
Italy, £38 W. Harrison & Co.

**Glucose—**
U. States, 50 pkgs. 300 c. Fuerst Bros.
" 250 250 Perkins & Homer
" 200 201 R. G. Hall & Co.
" 750 750 C. F. Webster & Co.
" 50 50 Ohlenschlager Bros.
France, 400 400 J. Barber & Co.
U. States, 5 25 Beck & Pollitzer

**Iodine—**
Germany, 57 pkgs. A. Gibbs & Sons

**Ochre—**
France, 103 pkgs. 99 cks. W. Harrison & Co.
Holland, 38 Phillipps & Graves
A. Turkey, 15 brls. M. D. Co.

**Painters' Colours—**
France, 31 pkgs. Flageollet & Co.
Holland, 7 A. B. Curtis & Co.
Germany, 1 H. Johnson & Sons
" 2 Phillipps & Graves
Belgium, 8 W. Harrison & Co.
" 18 2 cks. T. Palmer
Germany, 40 T. Hamilton
U. States, 2 Brown, Douglas, & Co.
Belgium, 6 Union L. Co., Ltd.
Germany, 51 23 cks. L. & I. D. Jt. Co.
" 1 Becker & Ulrich
" 4 T. H. Lee
" 12 G. Steinhoff
France, 11 L. & I. D. Jt. Co.
Belgium, 80 brls. Arnati & Harrison
U. States, 10 W. Caudery & Co.

**Paraffin Wax—**
U. States, 169 brls. C. Ogleby & Co.
" 700 pkgs. J. H. Usmar & Co.
" 5 T. Christy & Co.
" 463 T. T. Creed
Rangoon, 1,798 H. Hill & Sons

**Phosphate Rock—**
Holland, 194 t. Anglo-Contl. G. Wks.
Belgium, 140 R. W. Gould & Co.
" 290 Anglo-Contl. G. Wks.
Canada, 100 "

**Plumbago—**
Germany, 75 pkgs. Prop. Scott's Wf.
" 206 Forbes, Abbott, & Co.
Holland, 34 cks. B. Gallaway

**Potash—**
N. Russia, 1 pkg. Bessler, Waechter, & Co.
France, 100 c. Petri Bros.

**Potassium Carbonate—**
Germany, 11 c. Elkan & Co.

**Potassium Chloride—**
Germany, 200 pkgs. F.W. Berk & Co., Ltd.
" 203 Bessler, Waechter, & Co.

**Potassium Permanganate—**
Germany, 20 pkgs. Domeier & Co.

**Pyrites—**
Spain, 2,915 t. C. Tennant, Son, & Co.
Italy, 8 Italo-Brit. S. N. Co.

**Rosin—**
U. States, 500 brls.
" 4,806 H. Hill & Sons
France, 50 Pillow, Jones, & Co.
U. States, 3,113 G. Nutter & Co.
" 200 Moore & Hole

**Saltpetre—**
Germany, 20 cks. T. Merry & Son
" 14 P. Hecker & Co.
E. Indies, 285 bgs. Brown & Elmslie

**Silica—**
Germany, £120 A. Haacke & Co.

**Sodium Acetate—**
France, 18 pkgs. S. F. Waters & Co.

**Sodium Chlorate—**
France, 22 pkgs. R. Greening

**Sodium Hyposulphite—**
Holland, 114 pkgs. Beresford & Co.

**Stearine—**
Belgium, 76 bgs. H. Hill & Sons

**Sulphur—**
France, 5 t. J. Greig
Italy, 5 H. W. Ison
" 9 Italo-Brit. S. N. Co.

**Sulphuric Acid**
Holland, 9 pkgs. J. Owen
Germany, 2 Hammond & Co.

**Talc—**
France, £50 G. G. Blackwell
Italy, 50 A. H. Smith

**Tallow—**
Melbourne, 19 cks. Baxter & Hoare
Falkland Is., 14 Anning & Cobb
Queensland, 28 Goad, Rigg, & Co.
Germany, 1 cs. T. Christy & Co.
U. States, 10 L. & I. D. Jt. Co.
Sydney, 42 Aust. Meat Co.
" 54 J. Greig
Belgium, 63 bgs. H. Hill & Sons
France, 143 Beresford & Co.

**Tartaric Acid—**
Holland, 9 pkgs. Middleton & Co.
" 12 B. & F. Wf. Co., Ltd.

**Ultramarine—**
Canary Is., 80 pkgs. C. J. Capes & Co.
Holland, 80 cs. "
Germany, 1 H. Brooks & Co.
Holland, 7 Haeffner, Hilpert, & Co.
Belgium, 8 cks. Leach & Co.

**Varnish—**
France, 13 pkgs. Flageollet & Co.
U. States, 13 Brown, Douglas, & Co.

**Verdigris—**
France, 2 pkgs. C. Brumlen & Son
" 2 B. & F. Wf. Co., Ltd.

**White Lead—**
Holland, 90 cks. 257 pkgs. Phillipps & Graves
" 100 T. & W. Farmiloe
Germany, 40 Randall Bros.
Holland, 15 J. Matton
" 10 A. & M. Zimmermann
" 183 pkgs. Elkan & Co.
Germany, 9 Petri Bros.
Holland, 24 Burrell & Co.
Germany, 42 M. Ashby, Ld.
" 38 Magee, Taylor, & Co.
" 5 Stedman & Sons
Holland, 27 Blundell, Spence, & Co.
Belgium, 21 "
" 21 Leach & Co.
" 21 kgs Union L. Co., Ltd.

**Zinc Oxide—**
U. States, 100 brls. M. Ashby, Ld.
Holland, 3 cks. J. Matton
" 70 M. Ashby, Ld.

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## LIVERPOOL.

*Week ending October 13th.*

**Acid—**
Leghorn, 40 cks.

**Alum—**
Rotterdam, 12 cks.

**Ammonium Sulphate—**
Marseilles, 8 cks. C. Berthoud

**Antimony—**
Mollendo, 110 sks. J. Zigolo

**Barytes—**
Antwerp, 22 cks.

**Borate of Lime—**
Antofagasta, 1,460 sks. Cockbain, Allardice & Co.

**Borax—**
Havre, 5 pkgs. Cunard S. S. Co., Ld.

**Castor Oil—**
Calcutta, 625 cs. E. D. Sassoon & Co.
Marseilles, 5 brls. Evans & Roberts
" 1 G. G. Mackay
" 216

**Chemicals** (*otherwise undescribed*)
Kurrachee, 1 pkg.

**Cobalt Ore—**
Antofagasta, 6 pkgs. Aillon, Aramayo & Co.

**Cobalt Sulphide—**
Havre, 9 brls. Cunard S.S. Co.

**Colours—**
Ghent, 2 brls. J. T. Fletcher & Co.
Rotterdam, 30 cks. 5 cs.
Antwerp, 8 J.T. Fletcher & Co.

**Copper Sulphate—**
Bordeaux, 8 cks.

**Cream of Tartar—**
Bordeaux, 2 cks.
Rotterdam, 8

**Dyestuffs—**
**Algarobilla**
Havre, 786 pkgs.
**Argols**
Leghorn, 1 ck.
Portugal, 54 cks. German Bank of London
**Cochineal**
Canary, 10 bgs. Kolp & Co.
Las Palmas, 41 Kennedy & Moon
**Extracts**
Ghent, 150 cks.
Bordeaux, 50
Marseilles, 10
New York, 25 kgs. A. J. White, Ld.
Antwerp, 6 brls. J. T. Fletcher & Co.
" 30
Philadelphia, 60 350 bxs.
**Fustic**
Arzua, 54 ps.
**Indigo**
Havre, 2 pkgs. F. Leyland & Co.
**Madder**
Marseilles, 3 brls.
Rotterdam, 3 cks.
**Myrabolams**
Calcutta, 2,000 pkts.
Bombay, 197 bgs. D. Sassoon & Co.
" 3,792
**Saffron**
Valencia, 2 cs.
**Sumac**
Palermo, 300 bgs. H. Rooke, Son & Co.
" 350 25 bls.
**Valonia**
Smyrna, 580 qtls.

**Farina—**
Fiume, 100 sks.
Mollendo, 1,283 bgs.

**Lime—**
New York, 2,670 bgs.
Marseilles, 6 brls.

**Limestone—**
Antwerp, 1 cs. 3 fms. J. T. Fletcher & Co.
" 1

**Linseed Oil—**
Bombay, 1,202 bgs.

**Manganese—**
Poti, 2,500 t.

**Mica—**
New York, 10 brls. Robinson & Allen

**Ochre—**
Marseilles, 43 brls.

**Paint—**
Boston, 5 cs. T. Turner
" 50 Bahr, Behrend & Ross
" 30
Sierra Leone, 20 kgs.

**Phosphate—**
Montreal, 200 t.

**Phosphate Rock—**
Coosaw, 2,550 t. T. Harling & Co.

**Pitch—**
Boston. 1 brl.
Bordeaux, 29 cks.

**Plumbago—**
Montreal, 60 t. J. Stark

**Pyrites—**
Huelva, 2,017 t. Matheson & Co.

**Quicksilver—**
Gijon, 250 flks. J. Batt & Co.
" 163 A. Ruffer & Sons

**Saltpetre—**
Kurrachee, 177 bgs.

**Soap—**
New York, 2 cs.
Naples, 35 P. Behrends
" 38
Marseilles, 37
Sierra Leone, 859 bxs.
New Orleans, 682 brls.
Philadelphia, 600 bxs. 26 crts.

**Soapstone—**
Philadelphia, 140 bgs.

**Soda—**
Rotterdam, 25 cks.

**Soda Ash—**
New York, 5 cks.

**Sodium Nitrate—**
Caleta Buena, 15,265 bgs.

**Stearine—**
Marseilles, 4 bgs.
Antwerp, 33

**Sulphur—**
Catania, 199 brls.

**Sulphur Oil—**
Leghorn, 30 brls.

**Talc—**
Leghorn, 30 bgs.

**Tallow—**
New York, 300 tcs.
Boston, 10 hhds.
Philadelphia, 125
Rotterdam, 15 cks.

**Tartar—**
Bordeaux, 15 cks.

**Tartaric Acid—**
Rotterdam, 6 cks. 10 kgs.

**Tincal—**
Calcutta, 55 bgs.

**Tin Oxalate—**
Rotteram, 4 cs.

**Varnish—**
Bilbao, 4 cs. G. H. Fletcher & Co.

**Verdigris—**
Bordeaux, 2 cks.

**White Lead—**
Ghent, 13 cks.
Rotterdam, 57

**Zinc Oxide—**
Antwerp, 50 brls. J. T. Fletcher & Co.
" 75
Rotterdam, 75 cks.
**Zinc White—**
Rotterdam, 150 cks. O. & H. Marcus

## HULL.

*Week ending October 15th.*

**Acetate—**
New York, 386 bgs. Wilson, Sons & Co., Ltd.
**Acetic Acid—**
Rotterdam, 12 balns. G. Lawson & Sons
**Arsenic—**
Hamburg, 20 cks. Wilson, Sons & Co., Ltd.
**Barytes—**
Rotterdam, 6 cks. Hutchinson & Son
Bremen, 46 Tudor & Sons
" 84
**Chemicals** *(otherwise undescribed)*
Copenhagen, 1 ck. Wilson, Sons & Co., Ltd.
Stettin, 41 pks. "
Antwerp, 78 brls. Bailey & Leetham
Bremen, 3 cs. 9 cks. Veltmann & Co.
Dunkirk, 60 pks. Wilson, Sons & Co., Ltd.
Antwerp, 5 cks. "
**Colours—**
Antwerp, 41 cks.
Hamburg, 1
Rotterdam, 5 cs. 46 cks. Hutchinson & Son
Ghent, 62 brls. Wilson, Sons & Co., Ltd.
Antwerp, 12 brls. Bailey & Leetham
Amsterdam, 2 cks. W. & C. L. Ringrose
Flushing, 7 cs. 2 136 pks. Zeeland S. S. Co.
Rotterdam, 42 pks. W. & C. L. Ringrose
Danzig, 30 cks.
Rotterdam, 1 cs. 5 64 pks. G. Lawson & Sons
Hamburg, 2 cs. 7 Wilson, Sons & Co., Ltd.
Bremen, 2 Veltmann & Co.
" 1 J. Pyefinch & Co.
" 4 Sissons Brs. & Co.
" 6
**Cream of Tartar—**
Rotterdam, 2 cks. Hutchinson & Son
**Dyestuffs—**
**Alizarine**
Rotterdam, 30 brls. 28 cks. Hutchinson & Son
" 7 cks. W. & C. L. Ringrose
" 28 pks. G. Lawson & Sons
**Extracts**
St. Malo, 25 brls. 1 ck.
**Madder**
Rotterdam, 1 ck. Hutchinson & Son
**Farina—**
Ghent, 310 bgs. Wilson, Sons & Co., Ltd.
Harlingen, 300 bgs. W. & C. L. Ringrose
Hamburg, 20 Wilson, Sons & Co., Ltd.
" 74
" 50 Bailey & Leetham
**Glucose—**
New York, 45 brls.
**Limestone—**
Antwerp, 1 cs. Bailey & Leetham
**Manure—**
Ghent, 1 000 bgs.
**Nitrate—**
Rotterdam, 20 cks. W. & C. L. Ringrose
**Ochre—**
Rouen, 86 cks.
**Paint—**
New York, 15 cs. Wilson, Sons & Co., Ld.
**Pitch—**
Amsterdam, 13 cks. H. F. Pudsey
**Size—**
Hamburg, 2 cks. C. M. Lofthouse & Co.
**Soda—**
Rotterdam, 10 cks. Hutchinson & Son
**Tallow—**
Harlingen, 1 ck. Anglo-Dutch Trading Co.
New York, 79 pks. Wilson, Sons & Co., Ld.
**Tar—**
Uleaborg, 1,100 brls. 300 hf.-brls. J. M. Hamilton & Co.
**Tartaric Acid—**
Rotterdam, 3 cks. Hutchinson & Son
**Tin Oxide—**
Rotterdam, 6 cks. G. Lawson & Sons
**Ultramarine—**
Rotterdam, 1 cs. Hutchinson & Son
Hamburg, 20
**Varnish—**
New York, 3 brls. Wilson, Sons & Co., Ld.
**White Lead—**
Rotterdam, 13 cks. Hutchinson & Son
" 29
Antwerp, 26 Bailey & Leetham
Rotterdam, 10 Hanger, Watson & Harris
**Zinc Oxide—**
Rotterdam, 11 cks. Hutchinson & Son

## GLASGOW.

*Week ending October 20th.*

**Acetate of Lime—**
New York, 164 bgs.
**Alum—**
Hamburg, 146 cks.
**Alumina Sulphate—**
Hamburg, 10 cks.
**Asbestos—**
Quebec, 585 bgs. Scott Asbestos Co.
**Barytes—**
Rotterdam, 67 cks.
**Bleaching Powder—**
New York, 145 css.
**Castor Oil—**
Marseilles, 418 cks. 10 cs.
**Colours—**
Rotterdam, 30 cks. 1 cs. 1 bx. J. Rankine & Son
Hamburg, 10
**Cottonseed Oil—**
New York, 100 brls.
**Dyestuffs—**
**Alizarine**
Rotterdam, 43 cks. J. Rankine & Son
**Extracts**
Marseilles, 22 cks.
**Madder**
Marseilles, 13 cks.
Rotterdam, 4 J. Rankine & Son
**Guano—**
Hammerfest, 620 bgs.
**Ochre—**
Rouen, 3 css.
Bordeaux, 27 cks.
**Paint—**
Quebec, 70 brls.
**Rosin—**
New York, 200 brls.
**Soap—**
Marseilles, 89 bxs.
**Tallow—**
New York, 14 hds.
Baltimore, 60 trcs. J. Osborne & Co.
" 100
**Tartar—**
Bordeaux, 2 cks.
**Tartaric Acid—**
Rotterdam, 5 cks.
**Ultramarine—**
Rotterdam, 2 cks. J. Rankine & Son
**Varnish—**
New York, 50 brls.
Quebec, 21 kgs. 21 pkgs.
Montreal, 3
**Waste Salt—**
Hamburg, 230 t. 300 bgs. 125 cks.
**White Lead—**
Rotterdam, 26 cks. J. Rankine & Son
**Zinc Oxide—**
New York, 100 brls.

## TYNE.

*Week ending October 15th.*

**Acid—**
Hamburg, 10 cbys. Tyne S. S. Co.
**Alum Earth—**
Hamburg, 17 cks. Tyne S. S. Co.
**Colours—**
Hamburg, 3 cks. Tyne S. S. Co.
**Creosote Oil—**
Copenhagen, 1 cs.
**Limestone—**
Antwerp, 1 cs. Tyne S. S. Co
**Mica—**
Christiania, 8 sks.
**Potash—**
Hamburg, 2 cks. Tyne S. S. Co.
**Saltpetre—**
Hamburg, 4 cks. Tyne S. S. Co.
**Sulphur—**
Pomaron, 997 t. Mason & Barry
Huelva, 35

## GOOLE.

*Week ending October 6th.*

**Alizarine—**
Rotterdam, 25 pkgs.
**Antimony—**
Boulogne, 16 cks. 8 cs.
**Dyestuffs** *(otherwise undescribed)*
Boulogne, 15 cks. 14 cs. 9 pkgs.
**Farina—**
Hamburg, 162 bgs.
**Glucose—**
Hamburg, 21 brls.
Calais, 100 bgs.
**Lead Acetate—**
Hamburg, 33 brls.
**Potash—**
Calais, 18 dms.
**Saltpetre—**
Hamburgh, 10 kgs.
Rotterdam, 100 bgs.
**Waste Salt—**
Hamburg, 618 cks. 420 t 610 bgs.
**Zinc Oxide—**
Antwerp, 20 brls.

## GRIMSBY.

*Week ending October 8th.*

**Chemicals** *(otherwise undescribed)*
Hamburg, 22 pkgs.
**Dyestuffs** *(otherwise undescribed)*
Dieppe, 40 cks.
**Size—**
Antwerp, 15 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending October 19th.*

**Acetic Acid—**
Calcutta, 4 cks. £10
**Acid—**
St. Lucia, 12 cs. £50
Trinidad, 20 15
Lisbon, 21 pkgs. 52
**Alkali—**
Calcutta, 10 c. £7
**Alum—**
Salonica, 5 t. £28
**Ammonia—**
Natal, 1 t. 15 c. £53
Bombay, 10 cs. 50
**Ammonium Carbonate—**
Sydney, 12 c. 10 cs. £36
New York, 50 cks. 394
**Ammonium Chloride—**
Constantinople, 6 c. £10
Odessa, 15 32
Paris, 4 cks. 43
Salonica, 1 t. 1 34
**Ammonium Nitrate—**
Algoa Bay, 22 mlts. 17 cks. £314
**Ammonium Sulphate—**
Treport, 47 t. £470
Hamburg, 50 15 c. 525
Rotterdam, 65 650
Cologne, 30 300
Marseilles, 37 3 560
**Arsenic—**
Melbourne, 2 t. 10 c. £35
St. Petersburg, 10 1 132
Wellington, 5 70
**Bisulphide of Carbon—**
Melbourne, 40 cs. £44
Sydney, 20 22
**Boracic Acid—**
Otago, 7 c. £11
**Borax—**
Melbourne, 6 t. 10 c. £296
Genoa, 2 5 160
**Boric Acid—**
Lisbon, 5 cks. £20
**Carbolic Acid—**
New York, 1 t. 16 c. £94
Venice, 3 cs 11
Auckland, 11 pkgs. 9
Rotterdam, 40 cks. 216
Hamburg, 88 44 t. 6 c. 476
**Caustic Potash—**
Calcutta, 19 c. £22
Dunedin, 1 t 2 40
**Caustic Soda—**
Pt. Elizabeth, 9 c. £18
Lyttleton, 1 t. 4 13
E. London, 12 21
Natal, 9 17 134
Algoa Bay, 5 12 145
**Caustic Soda & Caustic Potash—**
Wellington, 17 c. £47
**Chemicals** *(otherwise undescribed.)*
Calcutta, 2 cs. £11
St. Lucia, 21 67
Auckland, 2 kgs. 13
Lyttleton, 2 12
Melbourne, 40 pkgs. 21
Alexandria, 16 70
Bombay, 13 73
Natal, 8 39
Algoa Bay, 7 87
E. London, 4 32
Cape Town, 10 65
Napier, 4 c. 15

**Chloride of Lime—**
Pt. Chalmers, 10 c. £11

**Citric Acid—**
Melbourne, 15 c. £120
Shanghai, 2 cs. 20
Riga, 1 10
Brussels, 15 126
St Petersburg, 10 92
Lisbon, 5 cks. 45
Wellington, 1 8
Hamburg, 15 124
Antwerp, 1 t. 168

**Coal Products—**

**Alizarine**
Boston, 20 cks. £310
Bombay, 70 kgs. 366

**Aniline Dyes**
Sydney, 2 cs. £41

**Aniline Oil**
New York, 10 drs. £340

**Aniline Salts**
New York, 53 pkgs. £400

**Anthracene**
Dusseldorf, 666 cks. £4,320
Rotterdam, 180 652
Cologne, 108 580

**Benzol**
Calais, 20 cks. 137
Rotterdam, 98 586
Philadelphia, 20 drs. 833
Terneuzen, 32 252

**Creosote**
Huelva, 1,000 cks. 4,400 brls. £585
Dieppe, 23,500 glns. 123
Stettin, 100 40

**Creosote Oil**
Treport, 10 brls. £22

**Naphtha**
Melbourne, 50 dms. 38
Canterbury, 10 drs. 11

**Naphthalene**
Philadelphia, 12 bgs. £4
Antwerp, 2 cks. 12
Hamburg, 132 31
Liban, 3 17

**Paraffin Wax**
Brussels, 10 cs. £30
Melbourne, 20 bgs. 72

**Pitch**
Antwerp, 2,141 t. £2,993
Alexandria, 200 brls. 65
Philadelphia, 500 cks. 261
Galatz, 20 6
Terneuzen, 493 690
Hockfield, 160 224
Calcutta, 12 25 29
Boston, 500 300 411
New York, 500 1,394 bgs. 511

**Pitch and Tar**
Salina, 160 cks.

**Pyridine Bases**
Hamburg, 31 cks. £262

**Tar Oil**
Havre, 50 brls. £24

**Tar**
Pt. Elizabeth, 500 dms. £19
Dunzig, 400 brls. 200
Natal, 60 drs. 10
Colombo, 20 rnlts. 9
Madras, 70 33
Calcutta, 150 65
Stettin, 100 41
Philadelphia, 701 400

**Toluol**
Philadelphia, 20 drs. £241
Rotterdam, 25 cks. 72

**Copper Sulphate—**
Amiens, 5 t. 2 c. £85
Wellington, 1 16
Auckland, 1 10
Terneuzen, 10 2 140
Canterbury, 1 15
Genoa, 29 393

**Cream of Tartar—**
Newcastle, 3 c. £13
Wellington, 18 79
Melbourne, 3 t. 247
Adelaide, 15 68
Cape Town, 10 5 kgs. 63
Sydney, 1 83
Dunedin, 40 pkgs. 175

**Disinfectants—**
Antigua, 4 cs. £15
Hamburg, 12 60
Wellington, 11 c. 20 drs. 31
Halifax, 5 cs. 16
Barbadoes, 11 22
Stockholm, 10 c. 15
Brisbane, 11 pkgs. 26
Sydney, 45 cks. 97
Calcutta, 20 17
Singapore, 350 135
Natal, 37 pkgs. 37
Otago, 80 110
Penang, 250 115
Canterbury, 6 16
Cape Town, 36 pkgs. 80

**Flowers of Sulphur—**
Pt. Elizabeth, 4 t. 9 c. £58
E. London, 10 cks. 140 kgs. 65

**Guano—**
Genoa, 25 t. £250

**Hyposulphites—**
New York, 8 cs. £80

**Manure—**
Lyttleton, 50 t. £300
Dunedin, 20 80
St. Lucia, 10 140
Bordeaux, 107 2 c. 416
Rouen, 142 570
Marseilles, 85 540
Auckland, 25 55
Treport, 29 18 180
Genoa, 20 140
Leghorn, 135 800
Trinidad, 7 182

**Metallic Sodium—**
New York, 3 t. 2 c. £500

**Oxalic Acid—**
St. Petersburg, 5 t. £135

**Phosphorus—**
Kobe, 15 cs. £150
Barbadoes, 2 c. 10

**Potash Crystals—**
Melbourne, 7 c. £42
Sydney, 6 35
Townsville, 6 t. 800

**Potassium Bicarbonate—**
Philadelphia, 2 t. 6 c. £67

**Salicylic Acid—**
Melbourne, 1 c. £30

**Salt—**
Genoa, 11 c. £120

**Saltpetre—**
Venice, 13 c. £14
Melbourne, 3 t. 65
Dunedin, 1 10 34
Syra, 4 2 84
Sydney, 1 5 27
Wellington, 10 11
M. Video, 2 15 59
Hamburg, 1 2 22

**Sheep Dip—**
Sydney, 18 t. 12 c. £250
Timaru, 25 dms. 15
Wanganui, 75 44
Auckland, 2 5 125
Wellington, 31 pkgs. 21
Kurrachee, 26 24
Natal, 100 cs. 700 392
E. London, 6 12
Mossel Bay, 75 30
B. Ayres, 1 t. 8 c. 1,300 cs. 3,953
Calcutta, 45 drs. 29

**Soda—**
Melbourne, 1 t. 13 c. £10
Newcastle, 20 65
Sydney, 50 160
M. Video, 8 2

**Soda Salts—**
New York, 3 t. 11 c. £30

**Sodium Bicarbonate—**
Napier, 2 t. £14
Wellington, 1 8

**Sodium Chlorate—**
Boston, 6 t. 16 c. £490

**Sodium Silicate—**
Lyttleton, 1 t. 2 c. £6

**Sodium Tartrate—**
Montreal, 17 c. £51

**Sulphur—**
St. Lucia, 35 brls. £47
Melbourne, 10 t. 62
Philadelphia, 2 17 c. 107

**Sulphuric Acid—**
Natal, 50 cs. £50
Adelaide, 10 9
Aden, 10 9

**Superphosphate—**
Pasages, 19 t. 14 c. £60
Rouen, 200 600

**Tartaric Acid—**
Melbourne, 1 t. 10 c. £158
Hamburg, 10 54
Newcastle, 4 20
Boulogne, 5 29
Bombay, 4 23
Napier, 4 20
Sydney, 1 102

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## LIVERPOOL.

*Week ending October 19th.*

**Alum—**
Bilbao, 3 t. 8 c. £17
Alexandria, 170 brls. 14 4 q. 125
Malta, 15 half-tcs. 14
Constantinople, 10 brls. 1 t. 8 c. 16
Calcutta, 100 91
Galatz, 10 3 25
Ibrail, 4 t. 10 c. 27
Quebec, 4 24
Beyrout, 7 42
Bangkok, 1 6
Varna, 30 brls. 21

**Alum Cake—**
Calcutta, 10 t. 10 c. £30

**Aluminoferric Cake—**
Montreal, 10 t. 12 c. £31

**Aluminous Cake—**
Calcutta, 240 t. 2 c. 1 q. £98

**Ammonia—**
Teneriffe, 24 galns. £10
Champerico, 5 c. 2 q. £6
Valparaiso, 5 2 9

**Ammonium Carbonate—**
Antwerp, 1 t. £28
Hamburg, 10 c. 16
Gothenburg, 5 8
Venice. 1 2 25
Marseilles, 2 brls. 4 kgs. 4 c. 2 q. 18

**Ammonium Chloride—**
Barcelona, 1 t. £33
Alexandria, 10 c. 17
Montreal, 5 2 q. 10
Newcastle, 10 14
Ibrail, 1 15 55
Leghorn, 16 26
Genoa, 1 33
Odessa, 1 10 49
Bombay, 5 5 173

**Ammonium Sulphate—**
Honolulu, 60 t. 7 c. £605
Rotterdam, 50 500
Valencia, 81 9 811
Barcelona, 10 2 3 q. 104
Bordeaux, 25 8 262
Gr. Canary, 2 20
Las Palmas, 50 15 520
New York, 49 16 510
Nantes, 39 2 393
Malaga, 100 18 2 1,057
Genoa, 82 1 871

**Anthracene—**
Rotterdam, 13 t. £300

**Arsenic—**
B. Ayres, 1 t. 2 c. £250

**Asbestos—**
Caleta Buena, 1 cs.
Vera Cruz, 3 bls.
Gr. Canary, 1 bg.

**Barytes—**
Hamburg, 3 t. 2 c.

**Bleaching Powder—**
Antwerp, 4 cks.
Baltimore, 109
Boston, 1,103
Havana, 11 cs. 20 brls.
Leghorn, 14
Naples, 12
New York, 1,202
Oporto, 30 7
Philadelphia, 28
Rio de Janeiro, 10
St. Louis, 45 pkgs. 40 bxs.
B. Ayres, 5 kgs.
Calcutta, 176 cs.
Ghent, 65
Havre, 25
Messina, 6
Rouen, 156
Valparaiso, 100

**Borax—**
Rio de Janeiro, 4 c. £6
Antwerp, 13 3 q. 22
Rotterdam, 4 t. 14 3 143
Montreal, 3 2 5
Malaga, 8 2 12
Wellington, 4 3 7
Ibrail, 10 14
Constantinople, 5 8

**Calcium Chloride—**
New York, 17 t. 3 q. £37
B. Ayres, 18 18 c. 43

**Caoutchouc—**
Rangoon, 1 ck.

**Carbolic Acid—**
Baltimore, 5 t. £256
Philadelphia, 1 5 c. 50
Rotterdam, 4 4 q. 14
New York, 5 12 280

**Castor Oil—**
Constantinople, 1 ck.

**Caustic Potash—**
Bilbao, 14 c. 3 q. £24
Montreal, 1 t. 10 50
B. Ayres, 2 4 3 54
Boston, 3 11 85
San Sebastian, 2 3 71
Adelaide, 1 2 3 37

**Caustic Soda—**
Baltimore, 50 dms. 135 brls.
Barcelona, 667
Bilbao, 150
Boston, 155 25 kgs.
Calcutta, 180 50
Galatz, 487 635
Galveston, 60
Havana, 30
Montreal, 715
New York, 1,547 120 brls.
Odessa, 432
Oporto, 10
Para, 6
Pasages, 50
Quebec, 25
Rangoon, 100
Rotterdam, 130 3
St. Louis, 20 bxs. 25
,, Petersburg, 200
San Francisco, 250
Smyrna, 18 cks.
Stockholm, 6
Tarragona, 30 10
Venice, 36
Algiers, 50
Algoa Bay, 9 cs. 10 bxs.
Calcutta, 50 kgs.
Ceara. 40
E. London, 20
Genoa, 60
Hamburg, 40
Malta, 34
Mayaquez, 6
Monte Video, 50
Naples, 45
Newfairweather, 36
Progresso, 20
Rouen, 34
Sourabaya, 10
Talcahuano, 25
Valparaiso, 45
Yokohama, 136

**Chemicals** *(otherwise undescribed)*
Alexandretta, 10 c. £17
La Plata, 1 t. 6
New York, 6 14 c. 170
Montreal, 2 60
Odessa, 1 9 1 q. 45
Beyrout, 5 8
Galatz, 4 6
Syra, 7 2 12
Philadelphia, 13 3 326
Hamburg, 2 15 84

**Chloride of Lime—**
Boston, 146 t. 6 c. £1,181

**Citric Acid—**
Valparaiso, 13 c. 2 q. £111

**Coal Products—**
**Aniline**
Montreal, 1 ck.
**Aniline Colours**
Montreal, 3 cks. 2 kgs. 1 bx.
Barcelona, 1
Boston, 9 3 cs.
New York, 12
**Aniline Dye**
Maranham, 2 cs.
**Aniline Oil**
Barcelona, 6 dms.
New York, 50
**Aniline Salts**
Barcelona, 11 cks.
New York, 72 cs. 8
Syra, 3

**Colours—**
Corfu, 3 brls.
Iquique, 31
New York, 9 cks.

**Copperas—**
Syra, 2 t. 18 c. £6
Montreal, 7 1 1 q. 19
Havana, 9 10 19
Constantinople, 4 16 10
San Francisco, 14 18 27

**Copper Sulphate—**
Genoa, 25 t. 13 c. 1 q. £346
Naples, 7 13 93
Ancona, 5 14 1 q. 80
Christiania, 1 6 32

**Disinfectants—**
Havana, 5 c. 2 q. £21
New York, 80 cks. 30 dms. 46 cs. 531
Odessa, 6 c. 3 q. 18
Kingston, Jam., 8 16

**Dried Blood—**
Gr. Canary, 2 t. 2 c. 2 q. £12
Barbadoes, 29 10 220

**Glucose—**
Natal, 2 cks.

**Guano—**
Valencia, 50 t. 15 c. £400
Tarragona, 50 482

**Gypsum—**
New York, 55 t. 12 c. £221

**Horn Piths—**
Boston, 70 bls.

**Hydrochloric Acid—**
Santos, 1 t. 6 c. £15

**Iron Oxide—**
Baltimore, 17 t. 19 c. £305

**Lead Acetate—**
Calcutta, 6 t. 3 c. £170

**Lime—**
Bonny, 3 cks.
Old Calabar, 5
Accra, 2 t. 8 c. £5

**Manganese—**
Montreal, 1 ck.

**Magnesia—**
Corfu, 2 cks.
Halifax, 35
Leghorn, 3 1 crt.

**Manganese Borate—**
Montreal, 1 ck. £7

**Magnesium Chloride—**
Piræus, 10 cks.

**Manure—**
Sourabaya, 65 t. 8 c. 3 q. £725
Malaga, 19 10
Bordeaux, 330 7 1 1,699
Havre, 75 2 1 447

**Metallic Sodium—**
Rotterdam, 2 t. 1 c. 1 q. £443

**Mica—**
New York, 3 cs.

**Oxalic Acid—**
Barcelona, 15 cks. £136

**Paint—**
Alexandria, 30 dms.
Amsterdam, 8 13 kgs.
Beyrout, 50
Callao, 29 32 cs.
Colombo, 4 cks.
Constantinople, 3
Curacao, 2 125
E. London, 10
Gibraltar, 70
Iquique, 171
Jaffa, 2
Kentville, 1
Lagos, 1 50
Larnaca, 6
Loanda, 4
Malta, 50
Manaos, 6 25
Maracaibo, 3
Montreal, 223
Para, 12
Philadelphia, 6
Rosario, 20
Stockholm, 100 dms.
Valparaiso, 300 brls. 500
Vera Cruz, 2
Antwerp, 14
Belize, 60
Brass, 10
Cadiz, 12 dms.
Corfu, 14 cks.
Genoa, 40
Brail, 7
Lisbon, 14
Manaos, 3 brls. 42
Maracaibo, 1
Nassau, 1
New York, 100
Ponce, 3
Port au Prince, 100 tins.
St. Croix, 3

**Painters' Colours—**
Bombay, 110 kgs. 31 cs.
Gr. Bassa, 50
Natal, 350
New York, 151 cks. 70 dms. 27
Old Calabar, 3
Patras, 4 brls. 4 1 kg. 1
Rio de Janeiro, 10 kgs. 4
Rotterdam, 10
Santos, 23
Syra, 19 brls.
Toronto, 37
Victoria, 2
Accra, 17
Baltimore, 10
Barcelona, 4 brls.
Bilbao, 1
Callao, 34 166
Ceara, 16
Ghent, 17
Guayaquil, 50
Leghorn, 10
Maranham, 2
Para, 11
Pt. Natal, 280
St. John's, Nfld., 3
Santa Catherina, 17
Santander, 6
Shanghai, 12 brls. 40
" 724
Talcahuano, 57

**Paraffin Wax—**
Patras, 7 cs.
Venice, 24 bgs.
Salonica, 25

**Phosphorus—**
Monte Video, 4 cs. £44
Hiogo, 15 193
Shanghai, 33 331
Yokohama, 15 175

**Pitch—**
St. Nazaire, 328½ t.

**Plumbago—**
Valparaiso, 10 cks.

**Potassium Bichromate—**
Malaga, 4 c. 2 q. £10

**Potassium Carbonate—**
Boston. 3 t. 5 c. £72

**Potassium Chlorate—**
Newfairwater, 2 t. £110
Ghent, 1 10 c. 80
Vigo, 1 63
Copenhagen, 5 280
Gothenburg, 3 160
Rotterdam, 1 10 80
Antwerp, 2 116
Hiogo, 10 30
St. Petersburg, 8 440
New York, 15 800
Hamburg, 2 10 135
Philadelphia, 1 56
Stettin, 1 10 85
Shanghai, 8 10 457

**Salt—**
Baltimore, 400 t.
Brass, 10
Cameroons, 48
Guayaquil, 1 5 c.
Lagos, 200
Melbourne, 669
Montreal, 1,031
New Orleans, 420
Newport News, 1,002½ t.
New York, 1,405 t.
Old Calabar, 29 5 c.
Quebec, 10
South Omah, 150
Talcahuano, 1 1
Valparaiso, 2 3
Victoria, 10¾
Abonnema, 20
Accra, 6¼
Amsterdam, 142
Anamaboe, 16
Antwerp, 370
Benin, 3
Black Point, 10½
Boston, 150
Calcutta, 2,923
Conakry, 35
E. London, 17 17
Fredrikstadt, 200
Galveston, 450
Monrovia, 5
Newcastle, 50
Rio de Janeiro, 8
Rotterdam, 255
Salt Pond, 31¼
Sierra Leone, 5
Trinidad, 11
Warre, 3

**Salt Cake—**
Baltimore, 252 t. 18 c. £609

**Saltpetre—**
Quebec, 10 c £11
Montreal, 1 t. 21
Iquitos, 10 11
Ceara, 2 10 55
Rio de Janeiro, 4 3 q. 6
B. Ayres, 11 12
Maranham, 11 2 13

**Sheep Dip—**
Galveston, 600 dms. 10 cks. £284

**Soap—**
Amsterdam, 40 bxs.
Antonina, 20 cs.
Barbadoes, 600
Belize, 400
Benin, 150
Bermuda, 3
Berne, 120
Calcutta, 36
Callao, 9 dms. 10
Constantinople, 100 23
Curacao, 1,226
Gibraltar, 475 20
Las Palmas, 60
Malta, 135
Manaos, 400
Maranham, 1
Montreal, 201
Naples, 1
New York, 300 8 28 tcs.
St. Vincent, 100
Singapore, 1,000
Smyrna, 40 8
Sourabaya, 1,500
Sydney, 1,480
Tangiers, 25
Trinidad, 680
Varna, 1
Warre, 150
Zurich, 120
Accra, 40
Alexandria, 1
Algoa Bay, 550
Axim, 66
Bombay, 1,791 8
Bordeaux, 1,000
Boston, 6
C. C. Castle, 40
Capetown, 900 c.
Chama, 30
Colon, 250
Corfu, 6
E. London, 1,700
Genoa, 130
Ghent, 63
Gr. Bassa, 30
" Canary, 493
Guayaquil, 850
Kingston, Ja., 1,235
Lagos, 23
Lanzdrote, 60
Natal, 242 3
Philadelphia, 50
Piræus, 25 25 bdls.
Rangoon, 1,200
St. Anne's Bay, 15
" John's, N.B., 100
" " Nfld., 402 8
San Juan, 100
Shanghai, 1,000
Wellington, 20

**Soda—**
B. Ayres, 17 brls.
Shanghai, 7 cks.

**Soda Alkali—**
Galatz, 40 brls.
Genoa, 75
Montreal, 50
Odessa, 35
Panama, 40
Toronto, 100
Tunis, 35

**Soda Ash—**
Amsterdam, 7 cks.
Baltimore, 582 899
Boston, 460 1,904
Madeira, 6
New York, 1,118 174 tcs. 6,580
Oporto, 22
Philadelphia, 775 1,000
Rio de Janeiro, 50 100 brls.
Rosario, 17
Smyrna, 112
Batavia, 49
B. Ayres, 100
Ceara, 20
Dunedin, 86
Galveston, 15
Gothenburg, 100
Hiogo, 325
Lisbon, 6
Maranham, 35
Montreal, 25
Odessa, 20 150
San Francisco, 64
Santander, 20
Santos, 30
Valparaiso, 50
Wellington, 40
Yokohama, 200

**Soda Crystals—**
Havana, 8 cs.
Smyrna, 125 brls
Boston, 280 cks.
Cairo, 90
Colon, 40
Malta, 50
Montreal, 334
Philadelphia, 581 560 374

**Sodium Arseniate—**
New York, 5 cks.
Rouen, 10 brls.

**Sodium Bicarbonate—**
Stettin, 30 kgs. 13 brls.
Alicante, 75
Auckland, 20 1,680
Baltimore,
Bremen, 20 cks.
Christchurch, 40
Dunedin, 75
Gothenburg, 10
Halifax, 25
Hamburg, 20
Hiogo, 500
Malaga, 1 bl.
Melbourne, 50
New York, 134
Odessa, 130
Otago, 40
Para, 2 cs.
Quebec, 200 15
San Francisco,
Trieste, 60
Valencia, 75
Wellington, 50

**Sodium Carbonate—**
Boston, 252 brls.
New York, 112

**Sodium Chlorate—**
Alexandria, 5 kgs.
Hamburg, 20
New York, 200
Rotterdam, 10
Ghent, 12
St. Petersburg, 30

**Sodium Phosphate—**
Piræus, 2 cks.

**Sodium Silicate—**
Piræus, 17 cks.
Lisbon, 50 brls.
San Sebastian, 13

**Stearine—**
Barcelona, 1 brl.

**Sulphur—**
Boston, 200 t. 5 c.
Montreal, 9 17 3 q.
Ceara, 1 5
Cardenas, 1 10 1
Pernambuco, 1 2 3

**Sulphuric Acid—**
Santos, 1 t. 4 c. 2 q.
M. Video, 1 10

**Tallow—**
Assinee, 4 tcs.
Tuticorin, 1 ck.
Stockholm, 20 cks.

**Tar—**
St. John's, Nfld., 25 hf-brls.
Victoria, 10 brls.

**Tin Crystals—**
Valencia, 5 c. 1 q.

**Turpentine—**
Bathurst, 10 dms.
Lagos, 6
Manaos, 10
Rio de Janeiro, 62 cs.
Para, 20 £9
**Varnish—**
Bombay, 6 brls.
B. Ayres, 3 cs.
Capetown, 2 cks. 1
Hong Kong, 1
Kentville, 1
Las Palmas, 2
Vera Cruz, 1 ck.
Bilbao, 2
Colombo, 2
Lagos, 5
Leghorn, 6 cks. 2
Loango, 1 brl.
**White Lead—**
Bonny, 10 kgs.
**Zinc Chloride—**
Rio de Janeiro, 6 cs. £9
**Zinc White—**
Marseilles, 4 cks.
Wilna, 22 pkgs.
Gr. Canary, 1½ t.

## HULL.

*Week ending October 15th.*

**Bleaching Powder—**
Amsterdam, 20 cks.
Danzig, 6
Riga, 20
Stettin, 99
**Borax—**
Constantinople, 2 cks.
Stettin, 22
**Caustic Soda—**
Antwerp, 37 dms. 1 bl. 60 kgs.
Danzig, 69
Helsingfors, 25 2 cks.
Libau, 205
Riga, 785 21
Reval, 515
Stettin, 35
Wyburg, 2 3
**Chemicals** (*otherwise undescribed*)
Bremen, 16 pkgs.
Christiania, 4 cs. 32 cks. 5 pks. 1,451 slbs.
Copenhagen, 38 8
Danzig, 38
Flushing, 12
Genoa, 9 4
Gothenburg, 25 23 52
Hamburg, 70 88
Konigsberg, 5 21
Libau, 100
Naples, 1
Riga, 48 318
Rotterdam, 30 13 51
St. Petersburg, 100 389
Stettin, 36 70
Stockholm, 5
Wyburg, 3
**Copper Sulphate—**
Danzig, 10 cks.
**Cottonseed Oil—**
Antwerp, 1,168 c.
Amsterdam, 33
Bremen, 100
Bordeaux, 103
Constantinople, 50
Copenhagen, 270
Hamburg, 2,344
Konigsberg, 13
Marseilles, 2,341
Rotterdam, 2,405
Stavenger, 83
Stettin, 724
Stockholm, 120
**Creosote—**
Amsterdam, 11 cks.
Gothenburg, 150
Odessa, 100
Stettin, 25
**Dyestuffs** (*otherwise undescribed*)
Gothenburg, 3 cks.
Reval, 2 bls.
St. Petersburg, 24
Stettin, 22 66
**Guano—**
Dunkirk, 267 bls.
**Linseed Oil—**
Bergen, 41 c.
Bordeaux, 21
Christiania, 724
Christiansund, 60
Copenhagen, 20
Drontheim, 179
Hamburg, 51
Rotterdam, 52
Stavanger, 86
**Manure—**
Bremen, 50 bgs.
Dunkirk, 164 bls.
Genoa, 55 t.
Hamburg, 5 377
Rouen, 385
**Ochre—**
Amsterdam, 19 cks.
**Painters' Colours—**
Antwerp, 12 cks. 33 dms.
Bremen, 129
Bordeaux, 13 21
Christiania, 96 1 cs.
Christiansand, 60 pkgs.
Copenhagen, 7
Danzig, 14 cks.
Dunkirk, 1
Genoa, 36 1
Hamburg, 57 1
Helsingfors, 1 2
Leghorn, 15
Marseilles, 18
New York, 549
Odessa, 90
Riga, 54 1
Rotterdam, 1
St. Petersburg, 171
Stettin, 20
Stockholm, 1 1
**Paraffin Wax—**
Marseilles, 50 cs.
**Pitch—**
Antwerp, 247 t.
Dunkirk, 80
**Size—**
Flushing, 12 cks.
**Soap—**
Hamburg, 2 cs.
Helsingfors, 26
**Tallow—**
Antwerp, 1 bl.
Flushing, 1 ck.
Rotterdam, 51
Stockholm, 12
**Tar—**
Danzig, 3 cks.
Flushing, 2 cs.
Hamburg, 2
Harlingen, 1
Odessa, 250
Stockholm, 1
**Varnish—**
Genoa. 2 cks.
Gothenburg, 5 6 dms
Stettin, 2

## GLASGOW.

*Week ending October 20th.*

**Ammonium Sulphate—**
Barbadoes, 5 t. 7¼ c. £70
Demerara, 69 10¾ 718
**Bichrome—**
Christiania, 5 cks. £70
Rouen, 5 t. ¼ c. 162
**Bleaching Powder—**
Bombay, 3 t. 13 c. £41
Brisbane, 121 9 1.096
**Castor Oil—**
Brisbane, £28. 15s.
Demerara, 1 t. 7½ c. £30
**Chemicals** (*otherwise undescribed*)
Trinidad, £315
**Creosote—**
Bombay, 3 t. 12¾ c. £47
**Dyestuffs** (*otherwise undescribed*)
New York, 12 c. £21
Rotterdam, 6 bxs. 10
**Extracts—**
Montreal, 21 t. 16¼ c. £512
**Fustic Extract—**
Montreal, £170
**Iodine—**
Rotterdam, 1 ck. £330
**Lead Acetate—**
Bombay, 3 t. 14 c. £60
**Linseed Oil—**
Bombay, 1 t. 16 c. £41
Trinidad, 16½ 23
Montreal, 8 t. 16¼ 165
**Magnesium Sulphate—**
Bombay, 5 t. 10 c. £21. 18s.
**Manure—**
Demerara, 43¼ £194
**Naphtha—**
Rouen, 25 t 16¼ c. £370
**Nitrate of Lead—**
Montreal, 5 t. 6 c. £91
**Ochre—**
New York, 30 cks.
**Paint—**
Singapore, 14 t. 2¾ c. £214
New York, 8
Calcutta, 4 t. 8½ 85
Demerara, 1 19 £46. 19s.
**Painters' Colours—**
New York, £88
Halifax, 33
Trinidad, 81
**Paraffin Wax—**
Shanghai, 29 t. 12½ c. £794
Rouen, 15½ 45
**Phosphoric Acid—**
Trinidad, 4 t. 17¼ c. £91
**Pitch—**
Oporto, 150 t. £130
Gijon, 901 8 c. 555
Amsterdam, 150 225
Gothenburg, 86 7¾ 200
**Potassium Bichromate—**
Shanghai, 5 t. 5¼ c. £205
Amsterdam, 12 cks. 198
**Potassium Chlorate—**
Bombay, 7½ c. £20. 5s.
**Potassium Sulphate—**
Demerara, 4 t. 11 c. £33
**Rosin Oil—**
Rotterdam, 20 brls. £36. 10s.
Montreal, 3 t. 4¼ c. 36 17
**Salt—**
Brisbane, 394 t. £400
Trinidad, 18 1½ c. 47
**Soap—**
New York, 9 t. 17½ c. £156
Barbadoes, 6 9¼ 112
**Sodium Bichromate—**
Bombay, 1 t. 1 c. £36
Rouen, 25 6¾ 862
**Stannous Chloride—**
Trinidad, 1,976 lbs. £57
**Sulphur—**
Trinidad, 27 t. 7¾ c. £248
**Tallow—**
Rotterdam, 3 t. 8 c. £112. 11s.
Trinidad, 3 13¾ £109
**Tar—**
Bombay, 9¼ c. £30. 10s
Colombo, 100 rnlts. £6
Calcutta, 300 109
Madras, 80 28
**Turpentine—**
Colombo, 100 glns. £12
**Varnish—**
Shanghai, 12½ c. £21
Rotterdam, 4 cks. 6
**White Lead—**
Oporto, 3 t. ¾ c. £42

## TYNE.

*Week ending October 15th.*

**Alkali—**
Hamburg. 5 t. 17 c.
St. Petersburg, 29 3
Rotterdam, 3 14
Riga, 30 3
**Ammonium Chloride—**
St. Petersburg, 11 t. 9 c.
**Arsenic—**
St. Petersburg, 1 t. 16 c.
**Barium Salts—**
New York, 28 t. 3 c.
**Barytes—**
Hamburg, 137 t.
Riga, 50
**Bleaching Powder—**
Naples, 2 t. 15 c.
Antwerp, 111 2
St. Petersburg, 255 17
Christiania, 30
Odense, 4 10
Carlshamn, 1 8
Rotterdam, 21 11
Stockholm, 2 11
Copenhagen, 29 4
Ghent, 30 3
Gothenburg, 16 14
Trondhjeim, 20 2
**Caustic Soda—**
New York, 155 t. 15 c.
Genoa, 24 10
Hamburg, 17
Christiania, 5 16
Venice, 33
Stockholm, 9 18
Gothenburg, 64 19
**China Clay—**
New York, 15 t.
**Colours—**
Naples, 4 c.
**Farina—**
Bergen, 2 t.
**Litharge—**
Hamburg, 17 c.
Carlshamn, 18
Copenhagen, 17
Riga, 11 c.
**Magnesia—**
St. Petersburg, 1 t.
Copenhagen, 1 10 c.
**Naphthalene—**
Riga, 24 t. 13 c.
**Paint—**
Stockholm, 1 t. 9 c.
**Soda—**
Wyborg, 5 t. 14 c.
St. Petersburg, 11 18
Christiania, 10 1
Svendborg, 4 5
Copenhagen, 4 16
Gothenburg, 1
**Soda Ash—**
Hamburg, 68 t. 14 c.
Wyborg, 120 12
Helsingfors, 42 10
Odense, 3 8
Stockholm, 60 9
Gothenburg, 225 11
**Sodium Hyposulphite—**
St. Petersburg, 5 t. 4 c.
Rotterdam, 5 5
**Sodium Sulphate—**
Gothenburg, 678 t. 8 c.
Copenhagen, 1 4
**Sulphur—**
Antwerp, 10 t.
Riga, 95
Gothenburg, 445 8 c.
**Superphosphate—**
Pernau, 126 t. 11 c.
**Tallow—**
Hamburg, 2 t. 15 c.
**Tar—**
Gothenburg, 1 t. 3 c.
**Varnish—**
Kiel, 1 t.
**White Lead—**
New York, 4 t. 19 c.

## GOOLE.

*Week ending October 5th.*

**Alkali—**
Ghent, 1 ck.
**Benzol—**
Ghent, 24 dms.
**Chemicals** (*otherwise undescribed*)
Antwerp, 1 ck.
Hamburg, 95 cks.
Rotterdam, 100
**Dyestuffs** (*otherwise undescribed*)
Antwerp, 4 dms.
Boulogne, 1 ck.
Ghent, 1 dm.
Hamburg, 1 ck.
**Manure—**
Dunkirk, 299 bgs.
Hamburg, 254
Rotterdam, 92
**Pitch—**
Antwerp, 322 t.

## GRIMSBY.

*Week ending October 8th.*

**Chemicals** (*otherwise undescribed*)
Dieppe, 3 cs. 2 cks. 101 pkgs.
Hamburg, 75
**Coal Products** (*otherwise undesc'd.*)
Dieppe, 74 cks.
**Dyestuffs** (*otherwise undescribed*)
Dieppe, 1 ck.

# PRICES CURRENT.

WEDNESDAY, Oct. 26th, 1892

PREPARED BY HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

*The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids :—** | | | | |
| Acetic, 25 °/₀ and 40 °/₀ | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | 50/- | | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 °/₀) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 10 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 1 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 10 | 1 | 3 |
| ,, ,, (grey) Hull | ,, | 10 | 1 | 3 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¾ |
| Aniline Salt ,, | ,, | 0 | 0 | 6¼ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 7 | 15 | 0 |
| ,, Liquor, 7 % | ,, | 3 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes :—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8 |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 9 |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 7 |
| ,, 50/90 ,, | ,, | 0 | 1 | 3½ |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 5 |
| ,, (crude 60°) | per gallon | 0 | 1 | 5 |
| Creosote (ordinary) | ,, | 0 | 0 | 1½ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 1 | 0 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 45 | 15 | 0 |
| ,, Sulphate | ,, | 15 | 0 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 15 | 0 |
| ,, Litharge Flake (ex ship) | ,, | 13 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |

| | | £ | s. | d. |
|---|---|---|---|---|
| Lime, Acetate (brown) | per ton | 6 | 0 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 3 | 10 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 4 | 6 |
| **Oils :—** | | | | |
| Cotton-seed | per ton | 18 | 10 | 0 |
| Linseed | ,, | 20 | 0 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 7½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 12 | 6 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 | 0 |
| Silver (metal) | per oz. | 0 | 3 | 2½ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 2 | 6 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 5 | 15 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 18 | 10 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 15 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Borate (Borax) | net, per ton | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | net pr. ton (10 ton lots) | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, (10 ton lots) | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 15 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 10½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¾ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 15 | 0 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7¼ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7½ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone : Best Quality (nominal) | ,, | 4 | 17 | 6 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 98 | 0 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 19 | 0 | 0 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# CHEMICAL TRADE JOURNAL

AND

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## ADVERTISEMENTS.

—Condy's White Lead Works, with Fixed Plant and Machinery, and letters patent for improvements in the manufacture of white lead. In With possession.

SRS. FULLER, HORSEY, SONS, AND ASSELL are instructed to SELL by AUCTION, on Thursday, Novem- t 12 precisely, on the premises, Ford's Folly, Church-road, Battersea, the ASEHOLD PROPERTY, having a frontage of 90 feet to the Thames, ground area of 19,785 square feet, the greater part of which is covered ings, including mill-house, crystallizing, corroding, evaporating, washing itating houses, drying stores, engine and boiler-house, chimney shaft, ouse, offices, &c. The letters patent and the whole of the plant and will be included in the purchase. Held on lease for an unexpired term rs, determinable, at a rental of £225. per annum. May be viewed by d particulars had on the premises of Messrs. Pratt and Norton, Char- untants, 9, Old Jewry-chambers, E.C.; of Messrs. Geo. and Wm. Webb, 11, Austinfriars, E.C.; and of the Auctioneers, 11, Billiter-square, E.C. the event of the works not being sold as a whole, the Leasehold interest red separately, and the Letters Patent and Plant and Machinery imme- d in lots.

White Lead Manufacturers, Paint Manufacturers, and others.

SRS. FULLER, HORSEY, SONS, AND SSELL are instructed to SELL BY AUCTION, in lots on the premises, hite Lead Works, Church-road, Battersea, on Thursday, Nov. 24th, at (unless previously disposed of), valuable LETTERS PATENT for nts in the manufacture of white lead, and plant, and machinery, including ontal engines, two Cornish and one locomotive boilers, four pairs edge ne filter pressers, four special pumps, six wrought and cast iron tanks, d fir vats and backs, part lead lined, columns and girders, a 12-barrel r wrought and cast iron pans, 30 cwt. weighing-machine, fittings of aces, shafting, gearing, metal cocks and valves, iron and lead pipes, and ther effects. May be viewed day preceding and morning of sale, and had as in above advertisement.

NTED, for the United States, a steady respect- ble man, who thoroughly understands the burning of non-cupreous the manufacture of sulphuric acid; six months engagement guaranteed.— , giving references and wages required, to "Acid," 50, Lime street C.

## Advertisements.

Advertisements of Situations Vacant, Premises on Sale or To be Let ous Wants, and Specific Articles for Sale by Private Contract are the *Chemical Trade Journal* at the following rates:—

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lvertisements, Announcements in the Directory Columns, and all Adver- ot prepaid, are charged at the Tariff rates which will be forwarded on

sements intended for insertion in the current week's issue ch the office by **Wednesday morning** at the latest.

## THE HOFMANN INSTITUTE.

FROM time immemorial it has been customary, on the loss of any of our greatest men, to raise some permanent memorial whereby to perpetuate and publicly acknowledge the services which the deceased rendered his country in his particular sphere of life.

The loss of the late August Wilhelm von Hofmann affects, however, not only his fatherland, but this country also, for his labour here in divesting chemistry of its alchemical attributes and establishing it as a science capable of practica application has produced results which cannot be effaced and in which anyone glancing back at the advances which science has made must inevitably perceive the vital influence of the teacher of teachers.

If ever a fitting opportunity presented itself for an international recognition of a noble man's work it does so now, and the opportunity is evidently not going to be allowed to pass unheeded.

The German Chemical Society have taken the matter in hand, and we have before us now a circular requesting us to give publicity to the aims of the society.

In order so to do it were best perhaps to quote the actual words in which the German Chemical Society has expressed its intentions, which are as follows:—

After the lamented close of a life such as that of the late Professor Hofmann nothing is more natural than the wish to give a worthy expression to our feelings of thankfulness and indebtedness to the departed by the erection of a worthy memorial.

This wish has been widely expressed, and was early discussed by the committee of the German Chemical Society.

The public erection of a statue would not be in accordance with the feelings of the departed, and moreover would, in Berlin, be a matter of considerable difficulty. We have, therefore, decided to employ all our power in carrying out the following plan:—

We will endeavour to obtain sufficient means to establish a Hofmann Institute, which will, in the first place, be devoted to chemical purposes, but will also serve as a friendly place of meeting for other scientific associations. In this Institute will be placed a statue of Hofmann by one of our foremost sculptors.

The means required for this purpose will certainly be very considerable; but Hofmann's epoch-making investigations have not only found work for thousands of industrious hands but have also proved of great commercial value. We know that many who have directly benefited by them look upon it as a duty to aid in this movement. Still greater is the number of those who have received intellectual inspiration of the highest kind from him. These will be no less ready to aid by their contributions in the carrying out of this great plan.

The German Chemical Society, which will be entrusted with the management of the Hofmann Institute, already

possesses a large capital, which can be drawn upon to a certain extent for the purposes of this undertaking.

It will, moreover, be remembered that on Hofmann's seventieth birthday a considerable sum was subscribed for a Hofmann Foundation. At that time Hofmann himself added a large amount to the sum and invested the whole, in order, in conjunction with the German Chemical Society, to subsequently procure a building to be devoted to the furtherance of chemical research. No directions have been left as to the disposal of this sum; but we believe that the erection of a Hofmann Institute will afford a most favourable opportunity of expending this money in the desired way.

We, therefore, appeal with confidence to all, be they friends, pupils, or admirers of Hofmann, to send liberal contributions to Dr. J. F. Holtz, 170, Müllerstrasse, Berlin, N., or to the Deutsche Bank, Berlin, for this purpose—.

If there is any further recommendation needed for such a well conceived memorial, it will be afforded very shortly, for on November 12th, 1892, the German Chemical Society holds its 25th anniversary, when it is intended to celebrate the occasion in the form of a memorial to the late Prof. Hofmann, who was the founder and for many years president of the society. After this meeting the society will be in a position to communicate further definite and satisfactory information concerning the proposed institute.

Seeing how many of our best chemists were taught, and inspired with a love of science by the enthusiasm and sincerity of the master mind, and bearing in mind the benefits which directly accrued to those who are now interested in the chemical and allied industries, we think it is hardly necessary to urge further the appeal which has been made.

The genial personality of the great master of chemical research will be impressed and a further appreciation of his estimable qualities aroused in the heart of every true Englishman by the knowledge of the fact that the late Prince Consort found in Hofmann a kindred spirit, and it was solely due to the efforts of his Royal Highness that Hofmann was introduced into this country.

The foundation of a Hofmann Institute, therefore, appeals to us in a twofold manner; while at the same time it will ensure a furtherance of the means whereby we have been enabled in the past to successfully cope with competition, and educate the rising generation up to the advances of the future, which must surely attend the present rate of development.

## THE MERSEY AND IRWELL JOINT COMMITTEE.

On Monday Oct. 31st, the usual monthly meeting of the above Committee was held in the offices of the Committee, Mosley-street. The chair was taken by the Right Hon J. T. Hibbert, M.P.

The Finance Committee in presenting their report proposed that the salary of the secretary should be £400. a year, including all legal and travelling expenses. The salary of the treasurer was fixed at £50. and the auditor's at twelve guineas.

On the motion of the chairman, seconded by Mr. T. W. Killick, Mr. F. C. Hulton was appointed clerk to the Committee.

Afterwards Mr. H. Alison, county treasurer, and Mr. H. W. Johnston, county auditor, were elected to fill the other positions.

The clerk reported the result of the action taken against the Bury Corporation a short time ago, and announced that he had received notice of appeal against the decision of the magistrates.

The chairman said the result was only such as he had anticipated. The only satisfaction that he could imagine the Bury Corporation had obtained out of this was that they were costing the Joint Committee a considerable sum of money. They had already thrown away a good deal of money of their own, and they were throwing away a great deal of the money of the ratepayers represented by the Joint Committee. had every conficence, however, that the result would remain the if the appeal was proceeded with.

The Consulting Sub-committee presented a report with referen the steps that were being taken by the manufacturers on the ban the different streams to stop polluting them. In all cases where a tion had been called to the breach of the law the offenders had u taken to either remove the cause of complaint or to take such ste might be necessary to prevent its recurrence. With regard t Chadderton Local Board, a deputation proposed to attend that me of the Committee, but the Sub-committee had directed the cle advise them that as they now appeared to be taking *bona-fide* acti the matter there would be no necessity for them to attend, and that a recommendation would be made that the Committee should them a further period of three months to enable them to carry o necessary works. The Sub-committee further reported that they not satisfied with the action taken by the Dukinfield, Gorton, Marple Local Boards to deal with their sewage, and they recomme that action should be taken against each authority unless the deput which was to wait upon the Committee gave a more satisfactory e nation than had been given to the Sub-committee.

The recommendation of the Sub-committee with reference to C derton was adopted, and the deputations from the other auth were then introduced.

### THE RAMSBOTTOM DEPUTATION.

The first was from the Ramsbottom Local Board, and on beh that authority Mr. J. W. Barlow (the clerk) stated that they had waiting for a favourable opportunity to purchase the necessary They had had 16 acres offered to them for £8,500., and another p 12 acres for £5,800., but they had not felt justified in spending amount of money, because they had not decided which was the scheme to adopt. They also felt that the amount of pollution turned into the river was very small, as their district was one of acres, and the sewage was very much diluted with surface water b it entered the river. They had now reasonable hopes of obtaining land at a great reduction, and intended to push forward with scheme with all possible speed.—Mr. Groves said that in 1887 authority assured the Salford Corporation that they were prepar scheme and making efforts to buy land. The Ramsbottom Local B had been playing with this thing. They were ordered in 1889 to polluting the river, and they were no nearer now than they were except that they had got the permission of the Local Govern Board.—On the suggestion of the Chairman, an extension of tim two months was granted to enable the authority to bring abou arrangement with the landowner for the purchase of the necessary At the same time the Chairman urged the members of the Board their best in the matter, because the arguments put forward by Barlow were not such as would have any weight with that Comm with the exception of showing that there were certain *bona fides* in intention to buy land. With regard to the statement that they di pollute the river much, there must be a certain amount of pollu whether it was very much or very little: but whether it was lit large, the Committee required that pollution to be taken out o river. While places like Manchester, which was spending £600, upon its sewage scheme, and Oldham, which had just decided to s £200,000. on a scheme, were taking steps to deal with their sew they could not allow other places to play ducks and drakes wit question as they liked. That Committee was determined, as far as could, to carry out the law, but at the same time they did not wi deal harshly or hardly with places like Ramsbottom.

### DEPUTATION FROM MARPLE.

Mr. Hodgkinson, the chairman of the Local Board, said they been in hopes that the Romiley and Bredbury Local Boards would them in a sewage scheme, but those authorities had quite rec declined to do so. The delay in carrying out the promise that made to Mr. Tatton was due to the fact that they had been waitin that decision. Another cause of the delay had been the resignati their engineer. There was not much pollution from their dis They had got the land and had decided upon their scheme, and as as they got a new engineer would proceed with it as rapidly as poss —An extension for two months was granted.

### THE DUKINFIELD DEPUTATION.

The Clerk (Mr. Garforth) explained the causes of the delay in c ing out a sewage scheme. They had, he said, had the necessary since 1879, and had been hoping that some of their neighbours w join them in a scheme. None of the adjoining authorities, howe would go in with them. They were on the point of appointi surveyor to take charge of the scheme, and if the Committee w extend the time for three or four months they would be able the prove that they were moving in the matter.—The Chairman said Committee did not wish to harass them if it could be helped, bu

o other places which were dealing with their sewage in a proper were compelled to deal out justice to all. If the Dukinfield did not carry out a scheme it would be the duty of that Com- compel them.—Mr. V. K Armitage asked how long it was Local Board had had professional advice on the subject.—Mr. : Eleven years.—Mr. Armitage : As a matter of fact you have ı any steps until you were compelled —Eventually the Com- greed to an extension of two months.

orton Local Board deputation next came before the Committee. ones (the chairman) explained that the sewage scheme for their ad been kept back by the division of the district, part of it een incorporated with Manchester. They had now prepared a and had applied for permission to borrow £20,000. They had great difficulties to contend with, but were now pressing for- th the utmost speed.—An extension of three months was

Iorden Local Board applied for a further extension of time.— fforth (chairman of the Board) explained that at present what he river from their district was only surface water and slop om a few cottages. They had only one large drain, and the om that, after passing through tanks, was used by a mill.—The was left to the chief inspector to deal with.—Dr. Hewitt d the hope that in cases where tanks were used in this way mittee would really take some steps to see that they were used. It was a difficult matter to get the Local Government sanction to borrow money for sewage purposes, but once the had been obtained the Board took no steps to see that the cheme was properly carried out.

putation from the Stalybridge Corporation, headed by Mr. n Machell, also attended to ask for an extension of time.—Mr. said they had engaged a firm of engineers in Manchester to plans, but had not yet received them. The moment they got ns and the estimates they would approach the Local Govern- ard for power to borrow the necessary money.—An extension onths was granted.

. Athron, clerk to the Aspull Local Board, asked for an n of time on behalf of that authority. They were, he said, disposing of half their sewage, and were preparing a scheme ing with the other half.—An extension of two months was o by the Committee.

Chief Inspector (Mr. R. A. Tatton) presented the following —

re are no serious cases of cinder tipping to report this month ; ovement in this respect is very marked within the Lancashire shire district, but there is still room for improvement in Derby- Mottram and Hollingworth : I have arranged a meeting with thorities, to take place on November 2nd, in accordance with tructions. The clerk to the Mottram Local Board will attend t meeting, instead of being present to-day, as he will then be eport more fully on the subject of a joint scheme for the two I beg to report that the following authorities are giving proof intention to treat their sewage at any early date :—Heywood tion : Plans are now being prepared, and will be completed mitted by the end of the year. Hyde Corporation : The disposal works are in course of construction, and will probably leted within three months from the present time. Oldham tion : Application has been made to the Local Government r power to borrow £200,000. for sewage purposes, and an has been held into the application. Castleton Local Board : ns are complete and have been submitted to the Local Govern- ard for approval. Kersley Local Board : A commencement n made with the construction of the precipitation tanks for treat- sewage of this district. Milnrow Local Board : The outfall re complete, but the main sewer is not finished. Wuerdle and Local Board : Sanction has been given by the Local Govern- ard to the sewage scheme ; land has been acquired and an r appointed to get out the necessary plans and details ; the rites that no unnecessary delay will arise in carrying out the The repairs at the Whitefield sewage works are not yet ed, but it is expected that they will be by the end of this week, eatment of the sewage by means of precipitation with alumino- ill be resumed. In accordance with your instructions at the ting a circular has been sent to all the manufacturers who the rivers and who have not yet carried out efficient works for their waste liquids, requesting them to comply with the ns of the Mersey and Irwell Joint Committee Act of 1892 ix months."

Armitage said he noticed that no reference was made in the o the pollution of those parts of the rivers Etherow and Goyt e within the Derbyshire County Council's jurisdiction. It had been d that the supervision of those portions of the two rivers which Derbyshire should be handed over to the Joint Committee, and d that, as the Derbyshire County Council did not seem disposed ed further in the matter, it would not be allowed to drop.—

Some correspondence with the Derbyshire County Council bearing upon the subject was then read, and afterwards it was agreed to again communicate with that Council, pointing out that the Joint Committee had no power to take over the control of the two rivers at present, and urging upon the Council the importance of taking steps to check the pollution of them by sewage and cinders.

Mr. Armitage also pointed out that the whole of the sewage of the Stand Lane portion of the Whitefield Local Board's district was turned into the river, and asked whether the chief inspector had any information with regard to it.—The clerk read a letter from the Whitefield Local Board acknowledging that the sewage was turned into the river, and explaining that as the district referred to was about to be taken over by the Radcliffe Local Board they were not proposing to take any steps to deal with the sewage.—Mr. Armitage then said that in the first instance the Whitefield Local Board agreed that an order to incorporate this district in that of the Radcliffe Local Board should be made, but now that the County Council had made the order they were appealing against it, and were using their own appeal as a means of delaying the carrying out of a proper sewage scheme.—On the suggestion of Mr. Killick (who had taken the chair owing to Mr. Hibbert having to leave the meeting), the matter was referred to the Sub-committee for consideration.

## THE DETECTION OF ARTIFICIAL BUTTER.

IN the course of a paper which was read some short time back by Professor G. C. Caldwell before the Chemical Section of the Franklin Institute, the author makes the following remarks on testing butter.

The subject, he says, is a very lengthy one, and would take too much time if dwelt upon fully, but the matter may be briefly stated thus :—

It must be remembered that the change in the properties of the fatty acids and their compounds, as we pass from one member of the series to another, is very slight ; and that it is only when we compare members of the series that are widely apart that we have such wide differences as to enable us to distinguish or separate them readily—differences in the melting point, solubility, or volatility. The fact that the fat of milk contains glycerides of two groups of fatty acids, thus widely enough separated from each other to give us marked differences in solubility and volatility, comes to our aid in distinguishing the butter from nearly all other fats, both animal and vegetable ; it is the one quality of butter that enables us to make use of chemical analysis in the detection of the adulteration of butter with other fats. Butyric acid and its three associates in butter are soluble in water and can be distilled without decomposition ; palmitic, stearic and oleic acids are quite insoluble in water, and are completely broken up if we attempt to distil them. Therefore, we have only to get the fatty acids out of the glycerides by saponification and decomposition of the soap by a mineral acid, treat this mixture of the fatty acids with boiling water, and separate the soluble part from the insoluble by filtration, and dry and weigh what is on the filter. The highest per cent. of these insoluble acids that is allowed to exist in genuine butter fats, on the basis of a large number of determinations that have been made, is ninety ; in oleo oil, tallow, lard, cotton-seed oil, we have from ninety-three per cent. and upwards. When butyric acid and its associates are separated out by distillation in the usual manner, we can estimate their amount by measuring the acidity in the distillate collected ; this measurement being now always expressed in the number of cubic centimetres of a one-fifth normal solution of sodium hydroxide that is required to neutralize the volatile acids obtained from two and one-half or from five cubic centimetres of butter fat. This number, which we may call the Reichert number, after the name of the chemist who discovered the method, ranges for genuine butter from ten upwards for two and one-half grammes of butter fat, or twenty upwards for five grammes of fat. The highest number for oleo oil, lard or tallow is less than one, and for cotton-seed oil and cocoanut oil seven.

By these means there is not the slightest difficulty in distinguishing pure butter from pure oleo oil, or the other preparations of a similar character ; nor is it difficult to distinguish butter adulterated with, perhaps, fifty per cent. of oleo oil and upwards, but the results are not sufficiently positive for adulteration with lower amounts. Furthermore since some animal oils that can be procured in quantity have been found to contain so large a proportion of these glycerides yielding volatile fatty acids, that by the addition of them to oleo oil, the Reichert number can be brought up to that for genuine butter, with little difficulty, our dependence on either of these two methods for detecting the adulteration may yet be made very insecure. For instance, porpoise jaw oil has been found to yield a fatty acid mixture by saponification, and so on, of which the Reichert number ranges from forty-six to sixty-six ; it needs only that this oil shall be so refined as to deprive it of its fishy taste and odour, in order that it may be used

to put chemists entirely off the scent, in the use of their analytical methods for the detection of adulteration with oleomargarine.

A multitude of simple tests have been proposed from time to time, and of such a very simple character that any one can make them with the simplest of appliances; but they have little value, being usually quite unreliable, and no conviction could ever be based on any one of them, or on all of them combined. One of these, simple in execution, though not in appliances, since it requires the use of a good microscope, depends on the fact that when a fat solidifies from a state of fusion, crystals are formed which, viewed by polarized light under the microscope, show a distinct play of colours or other very characteristic appearances. The process of manufacture of oleo oil in any of its forms involves in all cases the melting of the fat. Butter, unless exposed to unusual heat, is never melted; hence, normal butter will never present this phenomenon under the microscope with polarised light, while any fat refined by the application of heat, at any time during the process of its manufacture into imitation butter, will always show it. This simple method has been severely criticised; for it has been shown that under some rarely occurring circumstances oleomargarine may possibly not exhibit the phenomenon, and that butter, although perfectly genuine, may have been sometime just enough warmed to be partially melted, and then it will exhibit the phenomenon described. Nevertheless this test can be and is used by the inspectors of the Internal Revenue Bureau, specially adapted microscopes being supplied to them; but it serves only to indicate suspicious cases; a sample thus indicated as suspicious is subjected to analysis before any action is taken concerning it.

## SOCIETY OF CHEMICAL INDUSTRY

SCOTTISH SECTION.

THE opening meeting of the session took place in Glasgow, on Tuesday, November 1st, Mr. Chas. A. Fawcett, chairman of the section, presiding. In his introductory address, Mr. Fawcett alluded comprehensively to the environments of this section of the society, and to several of the drawbacks under which chemical industries laboured generally. The British patent laws wanted amendment in one respect certainly. An inventor of this country might take out a patent in Germany, France, etc., but was bound to commence manufacture on the foreign ground within a short limit of time, or the patent would become invalid. Foreigners should be held under the same obligation in this country, but were not, and their patented goods for British consumption they could make at home, and did so. The Scottish section was at a great disadvantage through having no recognised voice in the Chamber of Commerce, and this was an anomaly which, from session to session, it should strive to remove. In the education of young chemists, this country was deplorably inferior to continental countries, and surely this was a reproach which it was within their power to abolish. The mischievous practice of "tipping" those foremen and others who have the ordering (or the option of approving or condemning—which comes to the same thing) of chemicals from the manufacturers, was referred to in strong terms. A manufacturer might turn out chemicals of the most perfect quality, but had no hope of pushing them if he did not bribe; if he bribed well, he might send goods of the most inferior kind without risk. The custom was a clog upon progress, and the society should certainly try its hand at some remedy. The chairman was heartily thanked for his spirited address.

Mr. D. R. Stewart, chemical director to the Broxburn Oil Company, followed with a paper on "Flash-point, and heat of burning of mineral oil." He started with defining the "flash-point" as the lowest temperature at which an explosion of the vapours can be got when a light is applied to the mixture of air and vapour, and then proceeded to characterise the recommendations of Abel and Redwood to the Government (on which the present rule is founded) as absurd and wildly inconsistent. The flash-point of Scotch paraffin oils ranges from 100 degs. to 125 degs. F., the naphtha having been previously separated, and readily marketed by itself at good prices. In America and elsewhere there is not the same inducement to deal separately with naphtha, the production of which is far beyond requirement; and on the contrary there is the strongest temptation to put as much of it into the burning oil as possible. Consequently, the petroleum coming to this country bears a very low flash-point (between 73 and 80 degs.), and, thanks to the incomprehensible countenance of Abel and Redwood, it is admitted at that. It has been the purpose or Mr. Stewart's paper, and of the tables of tests by which it was accompanied, to show that oil of this low flash-point is a most dangerous compound, especially when we recollect that it goes to the uses of the poorest and most ignorant of the people. For the rich take care to confine themselves to oils of much higher flash-point. Mr. Stewart contends that the perennial catastrophe and loss of life through lamp explosions in this country have their origin in these inflammable foreign oils, and in the certificate of safety with which Abel and Redwood enfranchised them. This certificate had been all along a national calamity, and the insincerity of the affair was shown by the fact that the Government themselves oils of so low a flash-point, in the teeth of the argument advisers that the lower the flash-point the greater the safety this, Mr. Stewart points out, the argument amounted, whet authors seriously intended it or not. The paper dealt freely subject, and held the meeting most closely interested from ope close. The remedy called for is the raising of the statutory 100 degs. as a minimum, while some of the subsequent speakers as high as 120 degs. fixed. The meeting was the largest of the for some years, and was composed preponderatingly of represe of the Scotch Mineral Oil Companies. Mr. Stewart was thanked at the close of the meeting.

## EXPORTS OF ALKALI AND BLEACH.

THE following figures, which are taken from the Official and Colonial Statistics of the United Kingdom, give the and value of alkali and bleaching materials shipped to the mentioned countries during the month of August, 1892, as co with the same month in 1891:—

ALKALI.

| Port. | 1891. | 1892. | 1891. | 1 |
|---|---|---|---|---|
| | cwts. | cwts. | £ | |
| Russia | 6,797 | 17,759 | 2,504 | |
| Sweden and Norway | 13,800 | 7,957 | 4,013 | |
| Germany | 4,316 | 9,984 | 2,006 | |
| Holland | 5,701 | 6,841 | 1,864 | |
| France | 2,346 | 1,920 | 1,014 | |
| Spain and Canaries | 25,233 | 19,645 | 11,204 | |
| Italy | 14,842 | 19,882 | 6,489 | |
| United States | 248,592 | 301,016 | 88,893 | 9 |
| Australasia | 18,960 | 21,146 | 6,106 | |
| British North America | 22,738 | 18,251 | 8,240 | |
| Other countries | 64,728 | 75,827 | 26,011 | 2 |
| Total | 428,053 | 500,228 | 158,344 | 17 |

BLEACHING POWDER, ETC.

| Port. | 1891. | 1892. | 1891. | 1 |
|---|---|---|---|---|
| | cwts. | cwts. | £ | |
| United States | 74,812 | 81,808 | 26,147 | 3 |
| Other countries | 39,927 | 68,816 | 13,468 | 2 |
| Total | 114,739 | 150,624 | 39,615 | 5 |

## POTASSIUM BROMIDE.

By D. B. Dott.

THE tests for the purity of potassium bromide, as given British Pharmacopœia, are fairly complete, being inten guard against all probable impurities. The volumetric test regarded as of most importance, it being ordained that "not le 838, not more than 850 grain measures of volumetric solution of of silver" are required to precipitate 10 grains of the potassium br The absence of iodine having been proved, it is assumed that t cipitation by nitrate of silver can only be due to bromide, or to ture of bromide and chloride. If the potassium bromide were p pure, 10 grains of the salt would require 839·6 grain measure standard silver solution. The Pharmacopœia, therefore, app allows a very slight deficiency of bromide, or the presence of percentage of chloride. It is obvious, however, that if a sa bromide be contaminated with salts which do not yield a pre with nitrate of silver, a considerable amount of chloride may be and yet not be indicated by the official test. In other words, a may indicate 100 per cent. by the volumetric test, and still, as a of fact, be decidedly deficient in bromide. For instance, the the amount of moisture, the greater the amount of chloride whic escape detection. In a word, the volumetric test with silver is not by itself capable of determining the purity of a sample of br Nor would it be an easy matter to ascertain the nature and am

ible impurities present in small percentage in the salt; yet be necessary before one could interpret with certainty the e volumetric estimation.

t method of valuation of the bromide appears to be the ion of the amount of bromine actually present. Whether onal proportion exists as sodium or magnesium salt, is of nce from the physiological point of view. What is required dicinal salt is that it should contain the full amount or y the full amount of bromide, and be of practically omposition. Having these points in view, the potassium f three different makers was examined in manner as The pharmacopœial tests were first applied and the mois- mined. Iodine having been proved to be absent, a ortion of each sample was dissolved, nitric acid and excess of ate added, the precipitate consisting of bromide and f silver. This was collected in the usual way, heated to weighed. A weighed quantity of the mixed silver salt was ained in a state of fusion in a bulb-tube, while dry chlorine through until the weight remained constant, i. e., until the was entirely converted into chloride. From the loss in percentage of bromine is found. Knowing, then, the pro- chloride and bromide of silver, it is easy to calculate the ing proportions of chloride and bromide of potassium.

mples of potassium bromide, which we may call A, B and amined according to the pharmacopœial tests and by the bove described. I find difficulty in obtaining very precise titrating bromide with solution of silver nitrate, partly on the colour of the bromide of silver, but possibly, also, the relative affinities of bromine and chromic acid not differ- tly as those of chlorine and chromic acid, the end of the not so sharply defined as in the titration of chloride. 1·335 sample A was dissolved and diluted to 500 c.c. Of this, 50 rated with standard silver solution, potassic chromate being licator. 40·0 c.c. were required. 1·1965 gramme of sample B ested, 50 c.c. required 35·5 c.c. of the silver solution. of sample C tested in the same way, 50 c c. required 30·1 ecipitate. If these results are calculated as indicating f potassium alone, then

A. 99·01 per cent.
B. 99·51 ,,
C. 100·95 ,,

mples are all within the B. P. limits, although sample C is he border line. As the standard silver solution was simply y dissolving a weighed quantity of the nitrate so as to make mgrm. of chlorine; the strength of the solution was tested —100 c.c. were mixed with nitric acid and excess of hydro- id, and the precipitate collected and ignited weighed =·0009976 grm. Cl. in 1 c.c. (new atomic weights) showing ystallised nitrate of silver employed was not quite equal to nt.

isture in the samples was estimated by drying a quantity of red salt at 100° C.

A. 2·764 grm. lost ·028=1·01 per cent.
B. 2·7675 ,, ,, ·017=0·61 ,,
C. 1·956 ,, ,, ·026=1·32 ,,

the samples was then tested, by precipitating with nitrate of d passing chlorine over the dried precipitate as formerly

grm. gave ·4415 precipitate. ·9015 grm. of precipitate lost by treatment with chlorine ·213. This figure, multiplied by ves the bromine ·38269 grm.

grm. gave ·5775 grm. precipitate, 1·53 grm. precipitate lost 32 bromine.

grm. gave ·535 grm. precipitate, ·886 precipitate lost ·1995 84 bromine.

e results indicate:

| | A | B | C |
|---|---|---|---|
| Potass bromide ..... | 98·241 | 97·415 | 93·401 |
| ,, chloride..... | ·197 | 1·004 | 3·973 |
| Water..... | 1·010 | ·610 | 1·320 |
| Undetermined ..... | ·552 | ·971 | 1·306 |
| | 100·000 | 100·000 | 100·000 |

umbers seem to show that there is considerable variability in sition of the commercial salt, and that the present pharma- sts are not quite sufficient. It might be useful to introduce nal test, fixing a limit to the percentage of silver salt yielded tation, and fixing a minimum percentage of loss on fusing n a current of chlorine. This test would have the additional rming an interesting exercise for candidates for the pharma- cence.

## EXPORTS OF PETROLEUM FROM U.S.A.

AT the Chief Bureau of Statistics, Mr. S. G. Brock, gives the exports of petroleum and petroleum products from the United States during the month of September, 1892, and during the nine months ending September 30th. The total value of the shipments for September was $3,593,968, as against $3,950,591 in 1891; and for the nine months ending September 30th, 1892, $30,441,555, as opposed to $34,127,469 in 1891. The shipments were as follows:—

| | Gallons. |
|---|---|
| **CRUDE PETROLEUM.** | |
| Total for Sept., 1892..... | 9,773,010 |
| Total for Sept., 1891..... | 7,877,626 |
| Total for 9 months ending Sept. 30th, 1892 .... | 72,671,309 |
| Total for 9 months ending Sept. 30th, 1891 .... | 62,193,361 |
| **NAPHTHAS.** | |
| Total for Sept., 1892..... | 2,443,651 |
| Total for Sept., 1891..... | 2,417,759 |
| Total for 9 months ending Sept. 30th, 1892 .... | 9,598,987 |
| Total for 9 months ending Sept. 30th, 1891 .... | 7,810,555 |
| **ILLUMINATING.** | |
| Total for Sept., 1892..... | 50,528,152 |
| Total for Sept., 1891..... | 47,290,074 |
| Total for 9 months ending Sept. 30th, 1892 .... | 416,882,180 |
| Total for 9 months ending Sept. 30th, 1891 .... | 394,603,673 |
| **LUBRICATING.** | |
| Total for Sept., 1892..... | 2,526,216 |
| Total for Sept., 1891..... | 2,663,058 |
| Total for 9 months ending Sept. 30th, 1892 .... | 24,818,949 |
| Total for 9 months ending Sept. 30th, 1891 .... | 23,696,956 |
| **RESIDUUM.** | |
| Total for Sept., 1892..... | 2,310 |
| Total for Sept., 1891..... | 2,310 |
| Total for 9 months ending Sept. 30th, 1892 .... | 238,644 |
| Total for 9 months ending Sept. 30th, 1891 .... | 914,296 |

## THE USES OF MAGNESIUM OXIDE.

MAGNESIA, formerly chiefly valued on account of its medicinal properties, has recently risen into great commercial importance, owing to its infusibility and its employment as a lining for converters used in the basic process of steel manufacture. Caron, whose process was in the first instance followed, used calcined magnesite. This was made up with one-sixth of its weight of tender-burned magnesia, and from 10 to 15 per cent. of water, into a plastic state; it was then compressed into bricks in iron moulds and burned at a dull red heat. Prof. Ehrenworth has pointed out that, if the refractory properties of the magnesia are to be developed to the full, it is of the utmost importance that the whole of the magnesia should be dead-burned; the process, moreover, being carried so far as not only to expel the whole of the carbonic acid, but also to cause the full amount of shrinkage which this material is capable of attaining. This extreme amount of calcination is very difficult to effect, owing to the tendency of the magnesite to fly into splinters, and to drop to pieces when subsequently touched, and in consequence of its being such a bad conductor of heat the stone is very hard to burn in large pieces.

Recently dolomite, which is a double carbonate of lime and magnesia, has been used instead of magnesite. In order to prepare this material there are two processes before the public; that of Closson and that of Scheibler. Under the former plan, the calcined dolomite is mixed with chloride of magnesium, the chlorine in which separates from the magnesia and combines with the lime, yielding a soluble calcic chloride which can readily be washed out, leaving behind the insoluble magnesia. Under the process of Scheibler, the calcined dolomite is treated with dissolved sugar, leading to the formation of sugar of lime, and depositing the magnesia. The solution of sugar of lime is then exposed to carbonic acid gas, which separates the lime as a carbonate, leaving the sugar ready for re-use. Both these systems of producing magnesia have the advantage of relative cheapness in their favour, owing to the low price of dolomite. Prof. Frank, of Charlottenburg, has advocated the use of magnesia as a substitute for plaster of Paris for casts, and Grundmann has recently shown the advantage of employing a mixture of magnesia and powdered marble for this purpose. It has also been found that by following the direction given by Hirzel, that a mixture of benzole and magnesia is the very best possible substance for the removal of grease from drawings or from any other material.

## COMPOUNDED ARTIFICIAL MANURES.

THE question of the mixtures which it is possible to make of the various commercial fertilizers in order to facilitate or accelerate their diffusion has often been treated in this journal. The matter is one of some importance, for as there are some mixtures which are often made and of considerable advantage, so there are others which are not employed because they are injurious or even dangerous. Bone meal, natural and dissolved guano, and mineral superphosphates can be added without fear to almost all manures. It must only be remembered that a manure containing easily soluble phosphoric acid should not be added to one containing much iron and free lime; thus for example superphosphates should not be added to slag meal.

Salts of potassium have a tendency to form hard lumps, but this is prevented by the presence of organic matter, peat dust being the best material for the purpose. Bone dust, superphosphate, animal charcoal etc., act in the same way. When salts of potassium are mixed with basic slags organic matter should always be added.

The large proportion of nitrogen, which is very valuable, contained in Chili saltpetre and sulphate of ammonium renders it necessary to guard against any loss which might be incurred by mixing these substances with other fertilizers. Chili saltpetre is liable to loss of nitric acid, which may be set at liberty by the addition of acid fertilizers, such as superphosphate, which always contains a small amount of free sulphuric acid to prevent the retrogression of the phosphoric acid. In such cases, if the liberated nitric acid is in presence of organic matter it gives up oxygen to the latter, a state of things which always occurs when the superphosphate is not purely mineral, *i.e.* derived from phosphorite, coprolites, degelatinised bone dust, bone ash, etc. A mixture of superphosphate of animal black and Chili saltpetre becomes hot and evolves brown fumes, thus causing a considerable loss of nitrogen

An acid superphosphate made with the powder of bones, which have not been freed from gelatine or fat, may even form an explosive mixture with nitrate of soda. The fat being decomposed by the excess of sulphuric acid, the glycerine which is thus liberated may be converted by the nitric acid set free from the nitrate into nitro-glycerine.

In contradistinction to the nitrogen of nitrate of soda, that of sulphate of ammonia is fixed by acids, whilst bases liberate it from its compounds and make it volatile. Thus sulphate of ammonia must not be mixed with quicklime or slag dust, or serious losses of nitrogen will result. In order to render such a mixture possible, it has been proposed to add bisulphite of soda, a product of certain metallurgical processes, to the slag. This would have the effect of diminishing the basic properties of the slag and therefore its power of decomposing ammonium sulphate. In any case, even with this precaution, the loss of nitrogen might be considerable.—*(T. Société agr. du Brabant.)*

## THE FORMATION OF ALUMINIUM SULPHIDE.

By A. H. Bucherer.

THE increasing employment of aluminium lends interest to the inquiry whether the present method of manufacture is likely to prove permanent or whether it will be replaced by a purely chemical process. The raw material is the oxide, from which the aluminium is prepared by electrolytic decomposition in a bath of fused cryolite. A comparison of the energy actually required to obtain one kilo. of aluminium with that theoretically necessary will throw some light upon the economy of the process. The preparation of one kilo. of the metal by Cowle's process requires 44·5 electric hour-horse-power with a current of 3,000 Ampères Since now one hour-horse-power is equivalent to 636·8 units of heat, the energy used is equal to 28,337 units of heat. To this must be added 10% for the average loss in the conversion of mechanical into electrical energy, making altogether 31,000. On the other hand the oxidation of one kilo. of aluminium evolves 7,260 units of heat, this will therefore represent the energy required to split up the oxide into metal and oxygen. The combustion of the positive carbon electrode, however, aids in heating the bath, and the energy of this change must be subtracted from 7,260, leaving in all 5,630 units. Hence only $5{,}630 \cdot 28337 = \frac{1}{5}$ of the total electrical energy is employed in chemical, *i.e.*, electrolytic work, $\frac{4}{5}$ are lost in the form of radiant heat. If we assume that the electrical energy is supplied by a dynamo driven by steam power and that on the average 7% of the potential energy of the coal is converted into mechanical energy, it is obvious how costly the use of electricity is when operations have to be conducted in a bath at a high temperature, and the question as to whether a chemical method of making aluminium is not even yet possible, becomes of increasing importance The old process of Deville, consisting in the treatment of sodium aluminium chloride with sodium, can no longer compete with the electrolytic process, mainly on account of the cost of production of aluminium chloride. It can over scarcely be supposed that this will alter in the future. I winter of 1890 an attempt of mine to electrolyse aluminium su proved successful. Without referring here to this metallurgical w propose to describe the method of preparing aluminium sul which I discovered. Among all the methods proposed for this p the only one at present deemed successful is that of passing t bisulphide vapour over the oxide heated to bright redness. The reaction is represented by the following equation:—

$$Al_2O_3 + 3\,CS_2 = 3\,CO + Al_2S_3 + 3\,S.$$

J. W. Richards, in his extensive work on aluminium, stat equation:

$$Al_2O_3 + 3\,CS_2 = Al_2S_3 + 3\,COS.$$

Richards, however, overlooks the fact that carbon oxysulp itself decomposed at a red heat, whilst the formation of alum sulphide only takes place at a bright red heat. The carbonic oxi sulphur certainly combine in the cooler parts of the apparatus, b has nothing to do with the reaction itself. I observed that on p carbon bisulphide over white hot alumina the excess of bisulphi decomposed into carbon and sulphur, whilst the formation of alum sulphide proved to be most complete at this temperature. It ap very probable, therefore, that at this temperature carbon and s themselves would react with alumina in the sense of the equation

$$Al_2O_3 + 2\,C + 3\,S = Al_2S_3 + 3\,CO,$$

and experiment confirmed the idea.

A clay retort of semicircular section, 0·6 metres long and 0·3 was charged with a mixture of alumina and powdered wood ch so that the mixture covered the bottom of the retort to the dept mm. The retort had a round opening, almost 4 cm. wide at o into which a clay pipe, sloping upwards, and 0·6 metres long w fitted. This served for the introduction of the sulphur and the the gases. The retort was then heated by oil gas to whitene then portions of sulphur added at intervals of half an hour, so t sulphur was always present in the retort in slight excess. The of the tube was partially closed, so that the gases passed ou slight pressure. The excess of sulphur vapour prevented the ot bad effect of an excess of carbon monoxide, for the law of the a mass must be taken account of in an endothermic reaction suc one in question. When much sulphur is added the vapours r the tube, condense and fall back into the retort. A large e sulphur must be avoided, on account of its great cooling effec conversion into sulphide is quite complete, provided that the o is continued for a sufficient length of time.

An absorption of 180,500 units of heat takes place, the amount yet observed for a reaction. Richards, in attemp demonstrate theoretically that this reaction would not occur, st it only takes place with carbon bisulphide, because 52,000 units become free through the decomposition of one molecule o bisulphide. Richards, however, neglects to consider that this only act in the same way as heat supplied externally, and raise the temperature The carbon bisulphide aids the reaction, the carbon at the moment of action upon the alumina is in the condition. That this is also true for the sulphur is not so because at a white heat we must assume that sulphur is in a present in atoms.

This preparation of aluminium sulphide can be cheaply car on the large scale. When the sulphur is recovered I calculate of manufacture of sulphide, containing one kilo. of aluminium, mark. It may be mentioned that the electrolysis of fused alu sulphide renders it possible to use a furnace in which the loss o less than in the one employed in the present process. The formation of the sulphide is only one third of that of the oxid which points to a relatively easier reduction. There can be n however, that the discovery of a chemical method of reduc sulphide would be of the greatest industrial importance.

Although iron effects the reduction with formation of iron and ferro-aluminium, the product has hitherto been useless on of the amount of sulphur contained in it.—*Zeit für Angew. C*

## ANALYSIS OF CARBONIZED SUGAR WAS

(1) *Moisture.*—5 grms. substance are dried at 120° until a weight is attained.

(2) *Insoluble Matter.*—20 grms. of the powdered substa boiled with water for some time, and brought on to a filter pap has been dried at 110° and weighed. The residue is well dried at 110° and weighed. The filtrate is made up to 500 employed for the following determinations.

(3) *Potassium Chloride.*—The chlorine in 100 c.c. of the determined either gravimetrically or volumetrically.

*otassium Sulphate.*—100 c.c. of the solution are acidified with loric acid, a drop of nitric acid added and the sulphuric acid ated by barium chloride. The $BaSO_4$ obtained is calculated $O_4$.

*otassium Phosphate.*—200 c.c. of the filtrate are acidified with loric acid, evaporated to dryness in a platinum basin and dried . The dry mass is taken up with boiling water and a little loric acid, the silica filtered off, washed and weighed. The is precipitated from the filtrate by ammonia. The silica and mina are combined with soda, and are expressed in the results of sodium. After separating the alumina, the phosphoric acid aned by the molybdenum method and calculated as potassium

*otal Alkali.*—50 c.c. of the original solution are acidified with loric acid, the sulphuric acid precipitated by barium chloride, excess of barium separated by ammonium carbonate after zation with ammonia. The precipitate is filtered off and with hot water, the filtrate then evaporated, ignited until free nmonium salts, carefully calcined, and the residue again taken hot water, filtered and again calcined. The weight of the mass gives the amount of alkalies as chlorides.

*otassium.*—The alkali chlorides are dissolved in water, made 50 c.c. and the potassium in 50 c.c. of this solution precipitated atinum chloride and weighed. The amount of potassium is lculated from that of the double salt obtained.

*lation.*—The total potassium chloride is subtracted from the kali chlorides; from the residue is then taken the amount nding to sodium combined with alumina silica as described nd the residual quantity calculated as sodium carbonate. The of potassium chloride found by determination (3) is subtracted total potassium chloride (from 7), as is also that corresponding ate (4) and phosphate (5) of potassium, the residue being taken sium carbonate. As a check, the titration of the carbonate can ed out as described by Heyer.—*Chem. Zeit.*

## THE PROPERTIES OF TURMERIC.

is a root of a plant growing in India, China, and Madagascar, d now chiefly cultivated in Bengal. The roots are long, and vary ness from that of a quill to about an inch in diameter. They kled, and have joints or ring-like swellings at short intervals. lly the colour is a yellowish grey, whilst inwardly it is of a deep h-brown, darkest in the middle. When reduced to powder ear of a bright yellow. The roots contain from 5½ to 6 per mineral matter, moisture from 5 to 7, and 11 to 12 of colouring

olouring principle of turmeric is sparingly soluble in cold water, solves freely in boiling. It is also soluble in alcohol. By it is turned brown, whence paper saturated with tincture of has long been employed as a test. Sulphuric, nitric, and loric acids turn the colour of turmeric a kind of red, which, soon disappears; alkaline chlorides for a time brighten the nd solution of iron turns it brown.

nly adulteration to which turmeric is liable in commerce is salt, which is sometimes added in quantity to the roots whilst rough the mill. This sophistication, besides adding to the gives it a brighter appearance in the powder, at the risk of ously interfering with its uses in the dye-house.

etection of this fraud is easy. A small portion of the sus- owder is boiled in a test-tube, with pure concentrated nitric the organic mattter is destroyed The remaining iquid is then with pure water, and a solution of nitrate of silver added. If been present a copious white curdy precipitate will be formed.

haracteristics of a good turmeric are—it has a rich, deep, but orange colour, and a strong aromatic, rather pungent odour. l be perfectly dry. If damp it loses its brightness, turns a dull nd dyes only flat colours.

est way of testing turmerics is to dye weighed pieces of woollen th equal weights of the samples in boiling water. The swatches pared for depth of colour and examined for brightness overhand, l up horizontally to the light and viewed along the surface. In tion it should have a beautiful golden lustre, on the purity of s value for many purposes depends.

eric is a so-called substantive colour, dying full shades without dant. It is, however, very fugitive, being affected by air and well as by acids and alkalies. A very remarkable circumstance o mordant hitherto known increases its permanency, whilst ll bodies of that class decidedly impair its beauty.

# NOTICES.

## LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of
THE CHEMICAL TRADE JOURNAL
From
MR. JOHN HEYWOOD,
2, Amen Corner,
Paternoster Row, E.C.,
On usual trade terms.

## FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed* MONEY ORDER is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country

## *ANSWERS TO CORRESPONDENTS.*

J. T. D.—Your letter to hand for which we thank you.
C. A. K.—Thanks for information.
T. T.—We should think the idea would work well.
E. AND F. N. S.—We have acted upon your suggestion.
W. AND S.—It has been sent.
G. S.—We shall be pleased to send you notification of further corrections as they may occur.
C. M.—It will be arranged according to your latest information.
J. S. AND Co.—We trust you have received the copy by now.
J. S.—Your request will be complied with in due course.

# Trade Notes.

MORE CANNEL COAL.—A new and rich seam of cannel coal has been found during the sinking of a new shaft at Arley Mine, at the Peel Hall Collieries. There are two seams, each 6¾ feet thick.

BLEACHING POWDER CONTRACT.—The tender of the United Alkali Co., Limited, for the supply of bleaching powder to the St. Helens Corporation, has been accepted for the ensuing twelve months.

SOCIETY OF CHEMICAL INDUSTRY, *Newcastle Section.*—The opening meeting of the session of this section will be held on Thursday, November 10th, when a paper will be read by Dr. Lunge on "The influence of calcium chloride on oxidation during the Weldon process." Subsequent notice will be given of the proceedings of this section when the future arrangements are perfected.

SOCIETY OF CHEMICAL INDUSTRY, *Yorkshire Section.*—The opening meeting of this section will be held at the Queen's Hotel, Leeds, on Monday, November 7th, at 7-30 p.m., when Messrs. J. B. Cohen and G. Hefford will read a preliminary paper on "Sulphur in Coal." Coffee will be served at the close of the meeting. There will also be a committee meeting at 6-45 p.m.

SOCIETY OF CHEMICAL INDUSTRY, *Liverpool Section.*—The inaugural meeting of the session was held on Wednesday, November 2nd, in the Chemical Theatre of the University College, when the chairman, Mr. Henry Brunner, delivered his opening address on "Artificial Manures in Fruit Culture." Tea was served from 7 to 7-30 p.m. in the College Museum. The business of the meeting began at 7-30 p.m.

SOCIETY OF CHEMICAL INDUSTRY, *London Section.*—The first meeting of the session will be held at the rooms of the Royal Society, Burlington House, on Monday, November 7th, at 8 p.m. Mr. Watson Smith will read a paper on (1) "A new method of preparing nitrous oxide, (2) Notes on Schürmann's Reactions," and another paper will be read by Messrs. Prof. W. Ramsay and J. C. Chorley on "The Distillation of Wood." The chair will be taken by Mr. William Thorpe, F.I.C., F.C.S. On and after December 5th the meetings of the society will be held as usual at the rooms of the Chemical Society.

EXPLOSION AT A DYNAMITE FACTORY.—A terrible explosion occurred last week at a dynamite factory at Lima, Ohio, by which the building was completely destroyed. At the factory itself three persons were killed instantly, two others have since died, and two are missing, and are supposed to have been killed. A number of persons were injured at a distance from the factory.

Oil of Green Strophantus.—Professor J. J. Hofmann has recently obtained from green strophantus seed (by treatment with petroleum ether) 32 per cent. of a fatty oil, while the brown seed, treated in the same way, yielded 29 per cent. The specific gravities of these oils were 0·9125 and 0·9313, the iodine absorption numbers (by Hubl's method) 83 and 96, the saponification numbers 183 and 193. The bulk of the oil appears to consist of the ester of oleic acid. Of odorous fatty acid there were only very minute traces present.

The Drainage of Oldham.—The Local Government Board held inquiry at the Town Hall, Oldham, last week, into an application that has been made to them by the Corporation for leave to borrow £200,000., to be expended on sewerage works. The works proposed to be constructed comprise a system of sewers passing round the boundaries of Oldham, with the object of intercepting the existing sewers and conveying the sewage thus intercepted to a site adjoining the site of the sewage works of the Chadderton Local Board, where it will be dealt with by filtration. This scheme has been prepared by Mr. Law, C.E., of London, and it is understood that practically no opposition will be raised at the inquiry to the works proposed or to the borrowing of the money by the Corporation.

The Quality of Leeds Gas.—The following is taken from the report of Mr. T. Fairley, the gas examiner, who states that during the month of October, 1892, the proportion of total sulphur contained in the Leeds gas has averaged 13·43 grains per 100 cubic feet. The following are the results of tests made at the works in grains per 100 cubic feet :—

| Place. | Date when Tests were made. | | Total Sulphur. | Ammonia. | Carbonic Acid. | |
|---|---|---|---|---|---|---|
| | Sept., 1892. | Oct., 1892. | | | Weight. | Volume. |
| Meadow Lane.... | 16. 22. 28. | 3. 11. | 12·45 | 1·82 | 48·90 | 0·06 |
| New Wortley .... | 15. 21. | 7. 10. | 13·85 | 8·50 | 57·05 | 0·07 |
| York Street ..... | 23. 29. | 8. 13. | 15·60 | 1·69 | 48·90 | 0·06 |
| Average at Works | .. | .. | 13·43 | 5·25 | 48·90 | 0·06 |
| Average at East Parade ..... | .. | .. | 12·77 | 6·60 | 57·05 | 0·07 |

During the month the average illuminating power of the Leeds gas, tested at 6, East Parade, the tests being calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure, to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour) :—Standard argand, 24-hole, 18·8; standard batswing, 19·6; Sugg's illuminating power meter, 1·87.

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

There is nothing fresh to report in the tar products market. Benzol remains in an unsatisfactory position, and now that the cholera scare is over the future of carbolic acid is causing some anxiety. Anthracene is without change, and pitch is the only article that may be considered in a satisfactory position.

The sulphate of ammonia market closed steady at the end of last week, but no sooner does November set in than the bears are at their tricks again. Why it is expected that prices should relapse at the beginning of each month is best known to these speculators, otherwise there is neither rhyme nor reason for it. The position is quite unaltered, and the demand, if lagging for a few days, is bound to come again, and makers will consult their own interests best by keeping off the market until the demand sets in afresh, probably about the middle of the month. There are sellers to-day at £10. 2s. 6d. Hull and Liverpool, but the dealers are endeavouring to secure supplies at less than this. Beckton is nominally £10. 1s. 3d., and outside makes may be said to average this price also. It is reported in some quarters that business has been done at Hull, Leith, and Liverpool at £10., but there is no definite confirmation of any such price.

## REPORT ON MANURE MATERIAL.

There has been considerable business doing in ammoniacal material, but the advance indicated in our last report is barely maintained. Excepting for bone meal, phosphate material continues without improvement in value.

Florida phosphate rock, 75/80%, now offers outright at 8¼d. per unit, c.i.f. to United Kingdom, but still without inducing business, buyers being so far filled with stock that they are scarcely at liberty to buy further quantities. Peace River rock is worth barely 7d. per unit, c.i.f. to United Kingdom, and there are sellers of Bull River rock at 6½d. per unit. River Plate bone ash is still difficult to sell, and something like £3. or £3. 2s. 6d. on 70%, nett Hamburg terms, would have to be taken to induce business.

There is rather more enquiry for River Plate bones, but in the absence of cargoes offering, we do not hear of any business, £4. 5s., delivered good United Kingdom port, nearest value. Sellers are now asking more money for crushed Kurrachee bones, but £4. 2s. 6d. would probably do for November-December shipment. After very large sales of Bombay bone meal at £4. up to £4. 2s. 6d., the price has been advanced to £4. 5s., concurrently with advanced freights required. There is still enquiry for Charring bones at Liverpool, and £5. 5s. would be paid for good clean parcels.

The excitement in the market for nitrate has passed away, and the highest prices reached have been barely maintained. At the close the value on spot is 8s. 10½d. for ordinary quality, 9s. for good, and 9s. 3d. for refined. Due cargoes are worth 8s. 10½d. to 9s., according to size and test, and October-November sailings 9s. 1½d. to 9s. 3d.

## THE METAL MARKETS.

LONDON, Wednesday.—Pig iron firm. Scotch warrants closed at 41s. 4d. cash. Middlesbrough 37s. 4½d. cash, and Hematite 47s. 4½d. cash. Copper firm: Chili bars, G.O.B.'s and G.M.B.'s closed at £45. 10s. cash, and £46. to £46. 7s. 6d. three months. Tin firm. Straits closed at £94. 2s. 6d. to £94. 12s. 6d. cash, and £94. 12s. 6d. to £95 2s. 6d. three months. Australian, £94. 12s. 6d. cash. English ingots, £97. 10s. Lead easier: Spanish, £10. 5s. English, £10. 7s. 6d. to £10. 12s. 6d. Silesian spelter: Ordinary, £19. Quicksilver: First hands, £6. 10s., second hands, £6. 8s. 6d. *Copper shares:* Cape, 1 11/16 to 1 13/16; Copiapo, 2⅛ to 2⅜; Libiola, 3⅛ to 3⅜; Mason and Barry, 2⅞ to 3; Rio Tinto, 15⅜ to 15⅝; Tharsis, 4 9/16 to 4 11/16; Namaqua, ⅝ to ¾; Panulcillo, ⅜ to ½.

WOLVERHAMPTON, Wednesday.—Business somewhat improved both in pig and finished iron. Staffordshire all-mine pigs 62s. 6d. to 65s.; common, 38s. 6d. to 40s.; Lincolns, 48s.; Derbyshires, 46s. 6d. to 47s.; Northamptons, 45s. to 45s. 6d. Marked bars, £8.; medium, £6. 15s.; common, £5. 15s. Strip, £6. to £6. 2s. 6d. Sheets: Singles, £7.; doubles, £7. 5s. to £7. 10s.; trebles, £8. Steel billets, £4. 15s.; wire rods, £6. 10s.

GLASGOW, Wednesday.—Market firmer, with fair business. Scotch done at 41s. 3½d., and 41s. 4½d. cash, also at 41s. 5½d. and 41s. 7d., one month; closing with buyers at 41s. 4d. cash, and 41s. 6½d. one month; sellers ask ½d. more. Middlesbrough closes with buyers at 37s. 4½d. cash; sellers ask 37s. 7½d. Hematite closes with buyers at 47s. 4½d. cash; sellers ask 47s. 9d.

## MISCELLANEOUS CHEMICAL MARKET.

All products of the alkali trade are in fairly good demand for early deliveries, and there is some activity also in business for forward deliveries over 1893. Bleaching powder has now resumed its former value of £7. 10. nett per ton on rails at maker's works, and for forward contracts the price is still £7. 5s. nett on rails, at which latter figure considerable business has been done. In soda ash there is more competition for future business, and a consequent decline in value has taken place, more particularly in ammonia soda ash, 58%. Current market quotations are, for 48% to 58% Leblanc and ammonia ash 1 3/16d. to 1¼d. per degree, f.o.r. at maker's works. In caustic soda the values for spot and early deliveries are unchanged, viz.: F.o.b. Tyne, 77%, £11. 15s; f.o.b. Liverpool, 74%, £11. 5s.; 70%, £10. 5s.; 60%, £9. 2s. 6d.; cream, 60%, £8. 17s. 6d., 10 ton lots and upwards. For forward business concessions in prices are made. Recovered sulphur is steady, and in fair request at £4. 12s. 6d. f.o.r. Chlorate of potash still scarce at 7½d. per lb. Chlorate of soda, 8½d. There is no improvement in the position of sulphate of copper, in which business has been done at £14. 15s. to £15. per ton. White powdered arsenic continues to hold a firm position, and £12. 10s. nett, f.o.r. Garston, etc., is the lowest price. Acetates of lime are somewhat firmer for prompt delivery, and advances are quoted for forward contracts. Acetates of soda and lead are likewise firm for prompt and forward delivery. Nitrate of lead without improvement. Potash, caustic, and carbonate have been moving readily at current rates, and a fair amount of business has been done forward. Aniline oil and salt are still depressed, nearest prices being for oil 6¼d., and salt 5⅞d. Sulphocyanides continue to sell at low rates. Yellow prussiate of potash is somewhat easier, though 10d. per lb. is the lowest quotation for leading makes. In general chemicals the demand is still far from satisfactory.

## LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is firm, business is limited, and prices are fully maintained. Olive remains steady with a fair business doing in Neapolitan at £39., Spanish £36. to £38., Candia £36. 10s. to £37. per tun. Linseed: Liverpool makes are in request at 19s. 6d. to 20s. per cwt. in export casks. Cottonseed: Liverpool has a tendency to decline, being quoted to-day 18s. 3d. per cwt., but American is firm at 23s., only the best grades being on the market. Castor oil continues about the same. Good seconds Calcutta are quoted 2½d. being firm for forward deliveries, and first pressure French has been sold at 2⅝d. per lb. ex quay. Tallow is firm, with a fair trade doing at full prices. Resin, common, is still firmer, and 4s. 1½d. per cwt. is now the price at which it is firmly held. Spirits of Turpentine were quoted 23s. early in the week, but have declined, and 22s. 3d. per cwt. is to-day's value, being quiet thereat. Petroleum is steady and unaltered.

COLOURS are quiet. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s., medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20.

## THE LIVERPOOL MINERAL MARKET.

The firmness reported last week has been well maintained. Manganese: Arrivals are large, but the bulk has gone into consumption. The demand for good prices are rising. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump) continues quiet. Raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand), continues brisk, lump 20s., seconds 16s., and thirds 12s. French chalk: Arrivals fair; prices better. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump, none offering; nuts, 70s. to 80s.; whilst finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore continues to be very freely offered, and prices are easy; Bilbao, Irish, and Cumberland easier. Santander and manganiferous quiet. Emerystone: Best quality inquired for. No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal in good demand, and prices are firm. Chrome ore: Good demand. Antimony ore steady at £12., and metal £43. to £44. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. 10s. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese steady. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) steady; finest quality 22s. to 23s.

## TYNE CHEMICAL REPORT.

TUESDAY.

In the chemical trade bleaching powder continues unaltered at £7. 10s. per ton. Caustic soda 76/77% quiet at £11. 10s. and £10. 5s. per ton for 70%. Eor sulphur there is more enquiry, and £5. per ton is now asked by makers.

Bleaching powder, softs, £7. 10s. to £7. 12s. 6d. per ton nett; hards, £7. 15s. to £7 17s. 6d. per ton; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £4. 17s. 6d. and £5. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 58%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw. £3. per ton, 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per ton; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 7d. per lb. less 6%; pearl hardening, £3. 10s. per ton nett; pure white sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta crystals, £19. per ton; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; hydrate of barium, £11. per ton.

South Durham salt, 10s. 1d. per ton f.o.b. Tees.

Coals: With a large arrival of steamers, there is a better demand, and collieries are more fully at work. Best Northumbrian steam firmer at 9s. 6d. per ton. Second qualities rather easier. Small steam quiet at 3s. 9d. to 4s. per ton. Gas coal in full demand, prices vary from 7s. 6d. to 8s. per ton. Manufacturing coal quiet. Coke firm at 15s. to 16s. per ton, and heavy deliveries are being made at present.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The market for bleaching powder is in a sort of quandary, as to the forecast for the near future, in consequence of the predicted revolution to be brought about by the "new departure" of Mr. Mond. The price has further eased off, but some buyers apparently do not believe in any serious collapse of values, having booked pretty freely for next year's delivery at Union terms. There is little doing here in the alkali section, and with the exception of the above, and a further advance in chlorate of potash, prices are stationary.

In paraffins there is greater activity, but at the cost of ebbing quotations, caused by the unbridled competition now afoot. Nominally, scale and wax are down a further farthing, making a drop of three farthings altogether, since the slide began. It is so stated in the succeeding list of quotations, but it is sure that some makers are parting for less, although particulars do not transpire. For the moment the solid paraffin market has no definite bottom. Lubricating oils are weaker, and fetch less money. Burning oil is strong in its deliveries, ex contracts, at Association prices, which are not, however, very remunerative.

The feeling in sulphate of ammonia is rather more healthy, caused partly by the firmer position of nitrate of soda, and spot Leith to-day may be taken at from £10. to £10. 2s. 6d. Forward has been done at £10. 5s. or more.

Chief prices current are:—Soda crystals, £2. 17s. 6d. nett Tyne; alum in lump, £5. 10s., nett Glasgow; caustic soda, white, 74/77°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; bleaching powder, £7. 5s. to £7. 10s. nett Tyne; saltcake, 35s.; borax, English refined, £30., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 7¾d., less 5% Liverpool; nitrate of soda, 8s. 10½d. to 9s. 1½d.; sulphate of ammonia, £10. to £10. 2s. 6d. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £14. 10s., less 5% Liverpool; paraffin scale (hard), 2¼d., and soft 2¼d. per lb.; paraffin wax, 120°, semi-refined, 2¾d.; paraffin spirit (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower); ditto (lubricating), 865°, £2. 17s. 6d. to £3. 5s., 885°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 32,055 bags, and 8,259 baskets.

# New Companies.

**The Alkali Syndicate, Limited.**—CAPITAL £20,000. in £5. shares. The object of this company is to manufacture alkalies, plant and mechanical apparatus for this and other purposes. The subscribers to the memorandum of association are:—C. P. Thompson, 92, Foulden-road, W. Hackney, Middlesex, secretary; F. C. Hancock, 7 Smith-square, Westminster, Middlesex; F. Burchall, Woodside-lane, N. Finchley, N., solicitor's clerk; W. Stewart Gayton, Kingston-hill, Putney, banker's clerk; T. R. Rollinson, 28, Vernon-street, West Kensington, Middlesex; H. C. Hannington, Farringdon-street, E.C., druggist's accountant; W. M. Whitford, 120, Newgate-street, E.C., tobacconist.

**Berkefeld Filter Co., Limited.**—CAPITAL £20,000. in shares of £1. each. This company is formed to carry on the business hitherto prosecuted under the name of the Berkefeld Filter Co., as sellers,

manufacturers and agents of filters and filtering apparatus. The subscribers to the memorandum of association are:—R. Baelz, 14, St. Mary Axe, merchant, and C. T. Kingzett, Amherst-park, N., consulting chemist, 250 shares each; A. Haacke, 121, Oxford-street, merchant, 500 shares; Conrad Laver, Homerton, N.E., merchant, and E. Woende, 1, Royal Exchange-buildings, E.C., 250 shares each; Karl Kibbeler, 149, Houndsditch, chemist, 60 shares; E. Peake, 83, Westbourne Park-villas, clerk.

**Greenhithe Portland Cement Co., Limited.**—CAPITAL £30,000. in shares of £10. each. The object of this company is to deal in chalk, brick, tile and stone, etc., and also to manufacture cement. The subscribers to the memorandum of association are:—F. Chapman, 50, Lime-street, E.C., cement manufacturer; C. R. Cheffins, The Grange, Gillingham, Kent, cement manufacturer; J. W. Ellis, 140, Dean-street, Newcastle-on-Tyne, merchant; W. T. Grahamsley, 40, Dean-street, Newcastle-on-Tyne, merchant; J. Hunter, 17, Kenilworth-road, Newcastle-on-Tyne, accountant; J. Morgan, Kelwin-grove, Beckenham, secretary to a company; W. Morgan, 50, Lime-street, E.C., cement manufacturer.

**Trechmann, Weekes & Co., Limited.**—CAPITAL £60,000. in £10. shares. This company has been formed to take over and carry on the business of Portland cement, lime, brick and tile manufacturers, recently carried on by Messrs. T. and W. Weekes, at Halling, Kent. The subscribers to the memorandum of association are:—C. O. Trechmann, West Hartlepool, cement manufacturer; Otto Kramer Trechmann, West Hartlepool; Albert F. Trechmann, West Hartlepool; James Stothart, Stockton-on-Tees, gentleman; Thomas Weekes, Halling, near Rochester, cement manufacturer; William Weekes, Halling, near Rochester; Adolph Octavius Trechmann, Norton, near Stockton-on-Tees, cement manufacturer.

# The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

## APPLICATIONS FOR LETTERS PATENT.

**Manufacture of Soft Soap.** J. Brown. 18,527. Oct. 17th.
**Preventing Incrustation of Steam Boilers.** G. P. Gardner. 18,531. Oct. 17th.
**Manufacture of Hard Soap.** J. Brown. 18,533. Oct 17th.
**Manufacture of Iron Sulphate, and Materials Used for Precipitating and Filtering Sewage, etc.** F. P. Candy. 18,598. Oct. 18th.
**Manufacture of Briquettes from Slack.** G. Huttemann and G. Spieker. 18,605. Oct 18th.
**Manufacturing Manure from Sewage.** J. Carter. 18,648. Oct. 18th.
**Apparatus for Preparing Indigo.** H. S. Elworthy. 18,665. Oct. 18th.
**Paper Making Machines.** G. McNeill. 18,683. Oct. 19th.
**Manufacture of Paint and Cement.** H. H. Lake. 18,735. Oct. 19th.
**A Receptacle for Transporting, etc. Oil.** H. Imray. 18,741. Oct. 19th.
**Apparatus and Method for Oxidizing Indigo Liquor.** H. S. Elworthy. 18,762. Oct. 19th.
**Concentrating and Evaporating Liquids.** F. J. R. Carulla. 18,793. Oct 20th.
**Manufacture of Carbonic Acid Gas.** H. Steinem. 18,810. Oct. 20th.
**Removing Solid Matters from Liquid Sewage.** R. Birtwistle and J. Chew. 18,869. Oct 21st.
**Smoke Consuming Furnaces.** J. Sanders. 18,870 Oct. 21st.
**Improvements in the Manufacture of Alkali and Apparatus Therefor.** J. Hargeraves and T. Bird. 18,871. Oct. 21st.
**Open Glass Retorts for Concentrating Vitriol.** T. G. Webb. 18,891. Oct. 21st.
**Smelting Sulphides, etc.** F. O'Connor Prince. 18,892. Oct. 21st.
**Manufacture of Cuprous Oxide.** C. H. W. Hoepfner. 18,900. Oct. 21st.
**Treating Paraffin Scale and Other Crude Paraffins.** J. Hodges. 18,904. Oct. 21st.
**Producing Cyanides of the Alkali and Alkali Earth Metals.** O. J. Steinhart. 18,917. Oct 21st.
**Lubricating Grease.** I. R. Burns. 18,918. Oct. 21st.
**Coating Metal Shafts with Tin and Terne or other Alloys.** G. L. Morris and J. Williams. 18,928. Oct. 22nd.
**Electrolytic Decomposition of Compounds of Metals and Sulphur.** Siemens Bros. and Co. Ltd. 18,966. Oct. 22nd.
**Manufacture of Illuminating Gas.** L. H. Armour. 18,990. Oct. 22nd.
**Non-efflorescent Cements from Calcined Sulphate of Lime.** J. Thomlinson. 19,009. Oct. 22nd.

# Gazette Notices.

## PARTNERSHIPS DISSOLVED.

WILLIAMS AND E. ISAAC, under the style of Williams and Isaac, Pontardulais, Glamorganshire, copperas and chemical manufacturers.

J. CALLAWAY AND T. H. VERNON, under the style of Callaway and Vernon, High-street, Notting Hill, chemists and druggists.

G. A. HAVERLOCK AND A. USHER, under the style of Haverlock and Usher, Newcastle-on-Tyne, importers of, and dealers in nitrate of soda, chemical manures, etc.

## BANKRUPTCY ACTS, 1883 and 1890.

### Adjudications.

HYATT, WILLIAM HERBERT, Harlington, Bedfordshire, chemical and scientific engineer.

SAUNDERS, THOMAS BEALBY, AND SAUNDERS, ASHBY VARLEY, trading as Saunders and Saunders, Liversedge, Bradford, Cleckheaton, chemical manufacturers.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending October 22nd.*

**Acetic Acid—**

| | | |
|---|---|---|
| Holland, | 425 pkgs. | Beresford & Co. |
| ,, | 300 | J. Owen |
| ,, | 42 | Carey & Sons |
| ,, | 222 | A. & M. Zimmermann |

**Acetone—**

| | | |
|---|---|---|
| Holland, | 13 pkgs. | A. & M. Zimmermann |

**Alkali—**

| | | |
|---|---|---|
| France, | 205 c. | Arnati & Harrison |

**Alum—**

| | | |
|---|---|---|
| Holland, | 135 pkgs. | Ohlenschlager Bros. |

**Antimony—**

| | | |
|---|---|---|
| E. Indies, | 48 t. | Pillow, Jones, & Co. |
| A. Turkey, | 64 | French & Smith |
| France, | 1 | B. & F. Wf. Co., Ltd. |
| ,, | 10 | J. Bamber |
| Japan, | 17 | Pillow, Jones, & Co. |

**Asbestos—**

| | | |
|---|---|---|
| France, | £10 | Atkins & Nisbet |
| Italy, | 100 | J. Knill & Co. |
| France, | 21 | Mory & Co. |
| Canada, | 15 | Allan Bros. & Co. |

**Barium Nitrate—**

| | | |
|---|---|---|
| Germany, | 12 pkgs. | H. Lambert |

**Barytes—**

| | | |
|---|---|---|
| Germany, | 23 cks. | Tough & Henderson |
| Holland, | 43 | W. Harrison & Co. |
| ,, | 23 | W. Pope & Co. |
| ,, | 22 | Prop. Scott's Wf. |
| ,, | 46 | Union L. Co., Ltd. |
| Germany, | 21 | W. Harrison & Co. |
| Belgium, | 43 | Burrell & Co. |
| ,, | 44 | Magee, Taylor, & Co. |
| ,, | 21 | Stobbs, Wilson, & Co. |
| Holland, | 51 | A. Zumbeck |
| Germany, | 17 | S. N. Willoughby |
| Belgium, | 21 | Leach & Co. |

**Caoutchouc—**

| | | |
|---|---|---|
| Zanzibar, | 48 c. | Clarke & Smith |
| ,, | 172 | L. & I. D. Jt. Co. |
| Mombassa, | 91 | Lewis & Peat |
| U. States, | 62 | Prop. Bull Wf. |
| E. Indies, | 56 | Kleinwort, Sons, & Co. |
| France, | 20 | Beresford & Co. |
| Ibo, | 12 | Wallace Bros. |
| Germany, | 50 | L. & I. D. Jt. Co. |
| Zanzibar, | 4 | S. Figgis & Co. |

**Castor Oil—**

| | | |
|---|---|---|
| France, | 25 cks. | J. T. Morton |
| ,, | 21 brls. | Beresford & Co. |
| Germany, | 1 cs. | T. Christy & Co. |
| France, | 10 | C. S. Lovell |

**Caustic Potash—**

| | | |
|---|---|---|
| France, | 60 c. | Petri Bros. |
| ,, | 10 | J. A. Reid |

**Chemicals** *(otherwise undescribed)*

| | | |
|---|---|---|
| Germany, | 20 pkgs. £33. | T. H. Lee |
| ,, | 33 105 | A. & M. Zimmermann |
| ,, | 7 | H. Lambert |
| ,, | 3 | L. & I. D. Jt. Co. |
| ,, | 8 | Phillipps & Graves |
| ,, | £20 | Jenson & Nicholson |
| Holland, | 15 | T. Palmer |
| ,, | 20 | Phillipps & Graves |
| France, | 15 | C. Brumlen & Sons |
| Germany, | 6 | Suter, Hartmann & Co. |
| France, | 400 | Soundy & Sons |

**Copperas—**

| | | |
|---|---|---|
| Germany, | 25 pkgs. | L. & I. D. Jt. Co. |
| ,, | 18 | Burgoyne & Co. |

**Cream of Tartar—**

| | | |
|---|---|---|
| France, | 10 pkgs. | G. Ward & Sons |
| ,, | 2 | Smith, Abbott, & Co. |
| ,, | 5 | J. Puddy & Co. |
| ,, | 20 | W. C. Bacon & Co. |
| Holland, | 25 | B. & F. Wf. Co., Ltd. |
| Holland, | 20 | Middleton & Co. |
| France, | 24 | C. F. Gerhardt |
| ,, | 6 | E. W. Carling & Co. |
| ,, | 10 | B. & F. Wf. Co., Ltd. |
| Spain, | 3 | ,, |

**Dyestuffs—**

**Aniline**

| | | |
|---|---|---|
| Holland, | 7 pkgs. | Elkan & Co. |

**Argols**

| | | |
|---|---|---|
| Holland, | 415 pkgs. | Thames S. T. & L. Co., Ltd. |
| Italy, | 446 | ,, |

**Cochineal**

| | | |
|---|---|---|
| Canaries, | 24 pkgs. | Swanston & Co. |
| ,, | 6 | W. M. Smith & Sons |

**Cutch**

| | | |
|---|---|---|
| Rangoon, | 700 pkgs. | Wallace Bros. |
| ,, | 50 | A. Howden & Co. |
| E. Indies, | 25 | Hale & Son |

**Extracts**

| | | |
|---|---|---|
| U. States, | 10 pkgs. | Beresford & Co. |
| ,, | 50 | W. Burton & Sons |
| France, | 31 | 21 cks. Carey & Sons |
| Italy, | 10 | Beresford & Co. |
| Denmark, | 5 cs. | A. F. White & Co. |
| France, | 150 | L. J. Levinstein & Sons |

**Gambier**

| | | |
|---|---|---|
| E. Indies, | 142 pkgs. | Brinkmann & Co. |
| ,, | 538 | Beresford & Co. |
| China, | 9 | L. & I. D. Jt. Co. |
| Singapore, | 73 | J. Kenyon & Sons |
| ,, | 187 | Beresford & Co. |

**Indigo**

| | | |
|---|---|---|
| E. Indies, | 3 chts. | W. Brandts, Son, & Co. |
| ,, | 3 | Benecke, Souchay, & Co. |

**Coal Products—**

**Alizarine**

| | | | |
|---|---|---|---|
| Sydney, | 3 cks. | | £72 |

**Aniline**

| | | | |
|---|---|---|---|
| Hamburg, | 20 pns. | | £500 |

**Aniline Oil**

| | | | |
|---|---|---|---|
| Dunkirk, | 10 dms. | | £350 |
| Rotterdam, | 12 drs. | | 400 |

**Aniline Salts**

| | | | |
|---|---|---|---|
| Venice, | 12 rmlts. | | £100 |

**Benzol**

| | | | |
|---|---|---|---|
| Rotterdam, | 70 cks. | | £602 |
| Calais, | 20 pns. | | 220 |

**Coal Tar Dyes**

| | | | |
|---|---|---|---|
| Bordeaux, | 1 ck. | | £10 |
| Boston, | 2 pkgs. | | 96 |

**Creosote**

| | | | |
|---|---|---|---|
| Dieppe, | 588 brls. | | £123 |
| Baltimore, | 8 cs. | | 39 |

**Creosote Oil**

| | | | |
|---|---|---|---|
| Treport, | 54 cks. | | £106 |

**Naphtha**

| | | | |
|---|---|---|---|
| Calais, | 29 rns. | | 96 |
| Treport, | 28 brls. | | 67 |
| Natal, | 20 drs. | | 12 |

**Naphthalene**

| | | | |
|---|---|---|---|
| Dunedin, | 20 cks. | | £48 |
| Rotterdam, | 10 | | 9 |

**Pitch**

| | | | |
|---|---|---|---|
| Mauritius, | | 15 brls. | £9 |
| Naples, | | 100 cks. | 42 |
| Hochfeldt, | 145 t. | | 203 |
| Alexandria, | | 200 | 73 |
| Dunkirk, | 460 | | 600 |
| Port de Bouc, | 2,475 | 20 | 3,626 |
| Malta, | | 60 | 20 |
| St. John's, N.B., | | 163 | 102 |
| Philadelphia, | | 500 | 258 |

**Pyridine Bases**

| | | | |
|---|---|---|---|
| Stettin, | 3 drs. | | £105 |

**Tar**

| | | | |
|---|---|---|---|
| Mauritius, | 25 brls. | | £18 |
| Natal, | | 125 drs. | 9 |
| Stettin, | 200 | | 81 |
| Danzig, | 125 | | 125 |
| Canaries, | | 12 cks. | 13 |
| Sydney, | 50 | | 33 |

**Tar Oil**

| | | | |
|---|---|---|---|
| Calais, | 60 rns. | | £61 |
| Paris, | 12 cks. | | 30 |

**Toluol**

| | | | |
|---|---|---|---|
| Rotterdam, | 20 cks. | | £185 |
| Calais, | 50 rs. | 25 rmlts. | 167 |

**Copper Sulphate—**

| | | | |
|---|---|---|---|
| Napier, | 1 t. | | £13 |

**Cream of Tartar—**

| | | | |
|---|---|---|---|
| Townsville, | | 3 c. | £14 |
| Cleveland Bay, | | 3 | 13 |
| Sydney, | 2 t. | | 185 |
| Melbourne, | 2 | | 167 |
| Lyttleton, | 1 10 | | 140 |

**Cream of Tartar and Tartaric Acid—**

| | | | |
|---|---|---|---|
| Brisbane, | 2 cks. | | £13 |

**Disinfectants—**

| | | | |
|---|---|---|---|
| Kustendjie, | | 2 cs. | £10 |
| Demerara, | | 20 bgs. | 13 |
| Natal, | 2 t. 10 c. | 23 | 76 |
| Alexandria, | 8 | | 11 |
| New York, | 2 1 | | 43 |
| Paris, | 2 12 | | 18 |
| Hamburg, | | 20 bgs. | 8 |
| Brisbane, | | 20 | 106 |

**Guano—**

| | | | |
|---|---|---|---|
| Landernean, | 290 t. | | £2,900 |

**Liquid Ammonia—**

| | | | |
|---|---|---|---|
| Yokohama, | 5 t. 7 c. | | £176 |

**Manure—**

| | | | |
|---|---|---|---|
| Demerara, | 10 t. | | £88 |
| Teneriffe, | 2 | | 12 |
| Lisbon, | 175 10 c. | | 452 |
| Surinam, | 35 | | 350 |
| Rouen, | 60 | | 230 |
| Jersey, | 155 5 | | 703 |
| Treport, | 73 15 | | 475 |
| Auckland, | 55 | | 233 |
| Morlaix, | 114 3 | | 680 |
| Bordeaux, | 151 19 | | 877 |

**Oxalic Acid—**

| | | | |
|---|---|---|---|
| Brisbane, | 5 c. | | £7 |

**Nitric Acid—**

| | | | |
|---|---|---|---|
| Jersey, | 24 cbys. | | £44 |

**Phosphorus—**

| | | | |
|---|---|---|---|
| St. John's, N.B., | 6 cs. | | £66 |
| Teneriffe, | 4 c. | | 44 |
| Blenheim, | 1 | | 10 |

**Potassium Bichromate—**

| | | | |
|---|---|---|---|
| Rio de Janeiro, | 3 cks. | | £15 |

**Potassium Chlorate—**

| | | | |
|---|---|---|---|
| Lisbon, | 3 brls. | | £11 |
| Seville, | 2 c. | | 26 |
| Rio de Janeiro, | 6 | | 25 |
| Bilbao, | 5 | | 19 |

**Potassium Cyanide—**

| | | | |
|---|---|---|---|
| Shanghai, | 7 cs. | | £71 |
| Singapore, | 6 | | 43 |

**Potassium Permanganate—**

| | | | |
|---|---|---|---|
| Melbourne, | 3 kgs. | | £11 |

**Saltpetre—**

| | | | |
|---|---|---|---|
| Rio de Janeiro, | 3 t. 14 c. | | £82 |
| Rio Grande, | 17 | | 19 |
| Gibraltar, | 5 | | 100 |
| Lisbon, | 4 8 | | 89 |
| Venice, | 16 | | 17 |
| Adelaide, | 1 5 | | 25 |
| Natal, | 10 | | 11 |

**Sheep Dip—**

| | | | |
|---|---|---|---|
| Brisbane, | 70 drs. | | £54 |
| M. Video, | 250 | | 185 |
| Odessa, | 100 cs. | | 300 |
| Algoa Bay, | 550 | | 1,650 |
| E. London, | 1,050 | | 3,150 |
| Rio Gallegos, | 254 | 135 pkgs. | 750 |

**Soda—**

| | | | |
|---|---|---|---|
| Alexandria, | 8 c. | | £3 |
| Penang, | 1 t. 4 | | 5 |
| Sydney, | 16 | | 3 |

**Soda Crystals—**

| | | | |
|---|---|---|---|
| Natal, | 1 t. 12 c. | | £6 |

**Sodium Bicarbonate—**

| | | | |
|---|---|---|---|
| Dunedin, | 2 t. 10 c. | | £17 |
| Barbadoes, | 1 | | 8 |
| Napier, | 10 | | 3 |
| Bilbao, | 1 | | 27 |
| Townsville, | 3 | | 30 |
| Yokohama, | 1 3 | | 33 |
| Trinidad, | 1 | | 8 |
| Maryboro' | 10 | | 4 |

**Sodium Silicate—**

| | | | |
|---|---|---|---|
| Lyttelton, | 5 t. 8 c. | | £33 |

**Sodium Sulphate—**

| | | | |
|---|---|---|---|
| Ghent, | 60 t. | | £90 |

**Strontium Nitrate—**

| | | | |
|---|---|---|---|
| Calcutta, | 10 c. | | £15 |

**Sulphur—**

| | | | |
|---|---|---|---|
| Montreal, | 421 pkgs. | | £258 |
| Algoa Bay, | 2 t. 5 c. | | 29 |
| Rio Gallegos, | 1 11 | | 10 |
| New York, | 4 cks. | | 12 |

**Sulphuric Acid—**

| | | | |
|---|---|---|---|
| Algoa Bay, | 25 cs. | | £18 |
| E. London, | 25 | | 20 |
| Madeira, | 20 drs. | | 25 |

**Superphosphate—**

| | | | |
|---|---|---|---|
| Auckland, | 249 t. | | £1,018 |

**Tartaric Acid—**

| | | | |
|---|---|---|---|
| Melbourne, | 1 t. 10 c. | 20 kgs. | 258 |
| Cleveland Bay, | 1 | | 2 |
| E. London, | 1 | | 15 |
| Lyttelton, | 5 | | 30 |
| Townsville, | 2 | | 12 |

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## LIVERPOOL.

*Week ending October 26th.*

**Acetic Acid—**

| | | | |
|---|---|---|---|
| Messina, | 6 t. 5 c. | | £72 |

**Alum—**

| | | | |
|---|---|---|---|
| Rosario, | 7 t. 8 c. | | £37 |
| Beyrout, | 4 15 | | 23 |
| Smyrna, | 2 | | 12 |
| Galatz, | 6 17 | | 37 |
| Talcahuano, | 2 2 | 3 q. | 13 |
| Seville, | 2 | | 10 |
| Sierra Leone, | 6 cks. | | 5 |
| Mayaquez, | 3 | | 6 |
| Ibrail, | 38 10 | | 231 |
| Bahia, | 1 | | 6 |

**Alum Cake—**

| | | | |
|---|---|---|---|
| Havana, | 5 t. 4 c. | 2 q. | £27 |

**Ammonium Carbonate—**

| | | | |
|---|---|---|---|
| Venice, | 1 t. 5 c. | | £42 |

**Ammonium Chloride—**

| | | | |
|---|---|---|---|
| Alexandria, | 1 t. | | £33 |
| Trieste, | 1 1 c. | 3 q. | £36 |

**Ammonium Sulphate—**

| | | | |
|---|---|---|---|
| Demerara, | 40 t. 2 c. | 3 q. | £434 |
| Bordeaux, | 20 10 | | 215 |
| Genoa, | 20 12 | | 208 |
| Antwerp, | 50 10 | | 503 |
| Bordeaux, | 15 8 | 3 | 158 |
| Valencia, | 71 5 | 1 | 715 |
| Nantes, | 85 14 | | 900 |
| New York, | 75 12 | 1 | 794 |

**Antimony—**

| | | | |
|---|---|---|---|
| Santiago, | 1 ck. | | |

**Asbestos—**

| | | | |
|---|---|---|---|
| Alexandria, | 1 cs. | | |
| Demerara, | 1 | | |
| Maranham, | 1 trs. | | |
| Capetown, | 1 | | |

**Bleaching Powder—**

| | | | |
|---|---|---|---|
| Baltimore, | 224 cks. | | |
| Boston, | 1,387 | 280 brls. | |
| B. Ayres, | | 11 | |
| Calcutta, | 72 cs. | | |
| Lisbon, | 112 | | |
| Malaga, | 6 | | |
| M. Video, | 4 bxs. | 6 pkgs. | |
| Montreal, | 37 cks. | 30 trs. | |
| New York, | 273 | | |
| Philadelphia, | 194 | | |
| Valparaiso, | | 12 kgs. | |
| Ghent, | 65 | | |
| Havana, | | 10 brls. | |
| Havre, | 6 | | |
| Trieste, | 6 | | |

**Boracic Acid—**

| | | | |
|---|---|---|---|
| Rotterdam, | 2 t. 15 c. | 1 q. | £109 |

**Borax—**

| | | | |
|---|---|---|---|
| Montreal, | 6 c. | 2 q. | £11 |
| Antwerp, | 1 t. 5 | | 40 |
| Lisbon, | 1 | 3 | 29 |
| Rio de Janeiro, | 8 | 3 | 15 |
| Hamburg, | 4 7 | | 134 |
| Havana, | 2 18 | 1 | 87 |
| B. Ayres, | 1 4 | 1 | 36 |

**Caoutchouc—**

| | | | |
|---|---|---|---|
| Lisbon, | 1 cs. | | |

**Carbolic Acid—**

| | | | |
|---|---|---|---|
| Hamburg, | 1 t. 6 c. | | £121 |
| Vera Cruz, | 4 | 2 q. | 21 |
| Rotterdam, | 8 | | 123 |
| Calcutta, | 2 10 | | 31 |

**Castor Oil—**

| | | | |
|---|---|---|---|
| Malta, | 6 brls. | | |
| Little Popo, | 10 cs. | | |
| St. John's, Nfld., | 5 | | |

**Caustic Potash—**

| | | | |
|---|---|---|---|
| Chicago, | 3 t. 8 c. | | £113 |

**Caustic Soda—**

| | | | |
|---|---|---|---|
| Alicante, | 30 dms. | | |
| Bahia, | 10 | 50 kgs. | |
| Baltimore, | | 135 brls. | |
| Barcelona, | 100 | | |
| Bilbao, | 30 | | |
| Cairo, | 21 | | |
| Calcutta, | 107 | | |
| Fiume, | 70 | | |
| Galatz, | 136 | | |
| Genoa, | 888 | | |
| Hamburg, | 110 | | |
| Hamilton, | 80 | | |
| Havana, | 30 | | |
| La Plata, | 100 | | |
| Leghorn, | 121 | | |
| Lisbon, | 50 | | |
| Manilla, | 135 | | |
| Maranham, | 2 | | |
| Melbourne, | 62 | | |
| Montreal, | 135 | 51 pkgs. | 40 bxs. |
| New York, | 640 | 64 cks. | 120 brls. |
| Penang, | 50 | | |
| Pernambuco, | 25 | | |
| Quebec, | 50 | | |
| Rio Grande, | | | 155 kgs. |
| Rotterdam, | 42 | 7 | 10 |
| St. Louis, | 45 | | |
| San Francisco, | 10 | | |
| ,, Sebastian, | 80 | | |
| Sourabaya, | 75 | | |
| Talcahuano, | 25 | | |
| Trieste, | 77 | | |
| Vigo, | 6 | | |
| Acajutla, | 67 | | |
| Adelaide, | 35 | | |
| Algoa Bay, | | 12 bxs. | |
| Amsterdam, | 92 | 20 brls. | |
| Antwerp, | | 25 | |
| Bombay, | | | 20 |
| Boston, | 60 | | |
| La Guayra, | 30 | | |
| Malta, | 92 | | |
| Mazatlan, | 30 | | |
| Newfairwater, | 30 | | |
| New Orleans, | 98 | | |
| Oporto, | 60 | | |
| Philadelphia, | | 25 cks. | |
| Rio de Janeiro, | 25 | | |
| Stockholm, | 18 | | |
| Vera Cruz, | 50 | | |
| Vigo, | 28 | | |
| Yokohama, | 100 | | |

**Chemicals** (*otherwise undescribed*)

| | | | |
|---|---|---|---|
| Lisbon, | 13 c. | | £22 |
| Odessa, | 1 t. 11 | | 45 |
| Valparaiso, | 3 | | 102 |
| New York, | 24 19 | | 716 |
| Yokohama, | 1 | | 88 |
| Maranham. | 2 5 | | 43 |
| Rangoon, | 7 | | 13 |
| Barcelona, | 1 | | 30 |
| Philadelphia, | 13 3 | | 330 |
| Ibrail, | 15 | | 24 |
| Hamburg, | 1 4 | 1 | 38 |
| Lisbon, | 4 | | 6 |

**China Clay—**

| | | | |
|---|---|---|---|
| Barcelona, | 205 bgs. | | |
| Bombay, | 100 cks. | | |
| Boston, | 1,641 | | |
| Calcutta, | 80 | | |
| Montreal, | 120 | 450 bgs. | |
| New York, | 250 | | |
| Philadelphia, | 50 t. | | |
| Rio de Janeiro, | 6 | | |

**Chloride of Lime—**

| | | | |
|---|---|---|---|
| New York, | 53 t. 18 c. | | £465 |

**Citric Acid—**

| | | | |
|---|---|---|---|
| Mayaquez, | 2 c. | | £16 |
| Seville, | 1 kg. | | 9 |

**Coal Products—**

**Aniline Colours**

| | | | |
|---|---|---|---|
| Boston, | | 5 kgs. | |
| Beyrout, | 5 cs. | | |
| Genoa, | 2 | 1 | |
| Tunis, | 1 | | |

**Aniline Oil**

| | | | |
|---|---|---|---|
| Genoa, | 2 dms. | | |

**Aniline Salts**

| | | | |
|---|---|---|---|
| New York, | 36 cks. | 50 cs. | |
| Rouen, | 5 | | |

**Colours—**

| | | | |
|---|---|---|---|
| Lisbon, | 2 cks. | | |
| New Orleans, | 3 cs. | | |

**Copperas—**

| | | | |
|---|---|---|---|
| M. Video, | 10 t. | | £21 |
| Montreal, | 11 11 c. | 1 q. | 31 |
| Valencia, | 4 10 | 2 | 9 |
| Galatz, | 4 17 | | 9 |
| Calcutta, | 15 | | 25 |

**Copper Sulphate—**

| | | | |
|---|---|---|---|
| Sydney, | 5 t. | | £74 |
| Danzig, | 3 4 c. | | 43 |
| Bordeaux, | 15 2 | 2 q. | 225 |
| New Orleans, | 1 | | 15 |
| Catania, | 1 11 | 2 | 22 |
| Antwerp, | 1 19 | 1 | 28 |
| Fairwater, | 2 6 | 3 | 34 |
| Nantes, | 2 18 | 3 | 42 |
| Barcelona, | 5 1 | | 70 |
| B. Ayres, | 9 | 3 | 7 |
| Ghent, | 18 | | 12 |
| Naples, | 2 9 | 1 | 35 |
| Genoa, | 27 13 | 2 | 395 |
| Constantinople, | 1 | 1 | 16 |
| Rouen, | 25 | | 375 |
| Tarragona, | 24 15 | | 329 |

**Disinfectants—**

| | | | |
|---|---|---|---|
| Calcutta, | 1 t. 5 c. | | £7 |

**Dried Blood—**

| | | | |
|---|---|---|---|
| Bordeaux, | 10 t. 9 c. | 3 q. | £52 |

**Guano—**

| | | | |
|---|---|---|---|
| Malaga, | 70 t. | | £500 |

**Horn Piths—**

| | | | |
|---|---|---|---|
| Boston, | 42 bls. | | |

**Iron Oxide—**
Calcutta, 1 t. 7 c. £14
Santos, 25 4 125
Calcutta, 45 6 95

**Iron Sulphate—**
Messina, 3 t. 14 c. £7
M. Video, 10 3 1 q. 18
San Francisco, 19 5 36
Syra, 5 1 3 10

**Lead Acetate—**
Sydney, 1 t. 1 c. 2 q. £30
Rotterdam, 3 12 1 45

**Lime—**
Accra, 12 brls.
Anamaboe, 1 ck.
Demerara, 67 t. 10 c. £165

**Magnesium Sulphate—**
Calcutta, 50 kgs.

**Manganese—**
Hamburg, 14 cks. 5 t. 7 c.
Tarragona, 3
Calcutta, 3

**Manure—**
Valencia, 60 t. 12 c. 2 q. £187

**Metallic Sodium—**
Rotterdam, 2 t. 15 c. 3 q. £597

**Muriatic Acid—**
Santos, 1 t. 6 c. £15

**Nitrate of Lead—**
Genoa, 5 c. £6

**Oxalic Acid—**
Bordeaux, 1 t. 2 c. £30
Barcelona, 11 274
Trieste, 1 2 q. 28

**Paint—**
Callao, 32 cks. 30 cs.
Cape Haitreere, 2
Guayaquil, 45 kgs. 28
Jaffa, 2
Kingston, 200 225 dms.
Malta, 13
New York, 95 10 brls.
Rio Grande, 6 cs.
Sagua la Grande, 4
San Francisco, 15 8
Trieste, 8
Vigo, 2
Antofagasta, 6 cs.
Beyrout, 20
B. Ayres, 6
Calcutta, 72
Cape Hayti, 2
Cienfuegos, 4
Colon, 12
Curacao, 3
Dakar, 82
Demerara, 60
Gr. Bassa, 50
Hamburg, 1
Havana, 1
Kingston, Jam., 155
Lisbon, 4 100 1
Maranham, 25
Mollendo, 5
Oporto, 12
Para, 11 11
Ponce, 1
Port au Prince, 24
Port Said, 39

**Painters' Colours—**
Baltimore, 60 cks.
Belize, 14 195 kgs.
Calcutta, 3
Carthagena, S., 3 dms.
Coquimbo, 28 cs.
Galatz, 182
Havana, 3 5 brls.
Kingston, J., 1 1 hd.
Manaos, 9
New York, 24 300
Para, 50 dms. 135 10 brls.
Pernambuco, 32 244
Pimental, 20
St. John's, N.B., 5
,, Nfld., 14 208
Savanilla, 2 cs.
Sierra Leone, 50 4 dms.
Trinidad, 4
Yokohama, 20 cs.
Boston, 2
Lisbon, 2 2
Palermo, 1
Stettin, 15
Valparaiso, 63 167 cs. 22 brls.
Vienna, 5

**Paraffin Wax—**
Smyrna, 6 bgs.
Genoa, 2 27 cs.

**Phosphorus—**
Santiago de Cuba, 2 cs. £28
Trinidad, 2 20

**Pitch—**
Bilbao, 40 brls.
Iquique, 30

**Potassium Bicarbonate—**
Pasages, 14 c. 3 q. £31

**Potassium Bichromate—**
Sydney, 10 c. 3 q. £23
Vera Cruz, 1 t. 2 3 48

**Potassium Carbonate—**
New York, 15 t. £293

**Potassium Chlorate—**
Stettin, 7 t. 15 c. £414
Progresso, 1 5 79
Naples, 4 11
Genoa, 1 10 84
Danzig, 12 33
Ancona, 10 30
New York, 2 10 130
Gothenburg, 6 320
Sydney, 1 10 69
Shanghai, 7 18 360
New York, 12 10 700
Hiogo, 46 2,530
Boston, 2 104
Rotterdam, 10 28

**Potassium Chromate—**
Sydney, 4 c. £18

**Potassium Prussiate—**
Sydney, 10 c. £48

**Salt—**
Accra, 11¼ t.
Akassa, 200
Algoa Bay, 29
Baltimore, 300
Boston, 700
Cameroons, 30
C. C. Castle, 37½
Cape Lopez, 1
Demerara, 11
E. London, 34 12 c.
Halifax, 190
Kingston, Jam., 5
M. Video, 8 15
Montreal, 250
Old Calabar, 50
Portland, Or., 300
Pt. Natal, 356 17
Quillo, 100
Rangoon, 1,000
Rio de Janeiro, 4¾
St. John's, Nfld., 1 9
Salt Pond, 20
Savannah, 1,100
Talcahuano, 1 1
Trinidad, 17 16
Victoria, B.C., 90
Yokohama, 2 3
Abonnema, 15
Alligator, 5
Antwerp, 315¾
Assinee, 12½
Axim, 6¼
Bakana, 8 19
Bandholm, 15
Calcutta, 502
Capetown, 10
Conakry, 40
Ghent, 197
Gr. Bassa, 10
Hamburg, 94
Mobile, 300
Monrovia, 24 11
New Orleans, 710
Opopo, 26 13
Rotterdam, 264
Wellington, 15

**Salt Cake—**
Philadelphia, 125 t. £326
Baltimore, 321 11 c. 746

**Saltpetre—**
Natal, 10 c. £16
Para, 1 t. 22
Bahia, 12 3 q. 14

**Sheep Dip—**
M. Video, 8 t. 19 c. £190
Owen Sound, 1 5 29
B. Ayres, 48 16 1,221
Calcutta, 1 10 30

**Size—**
Rouen, 10 cks.
Malaga, 16

**Soap—**
Alexandria, 4 c.
Algoa Bay, 800 bxs.
Barbadoes, 1,570
Belize, 1 cs.
Brass, 60
Brussels, 450
B. Ayres, 150
Calcutta, 13 23 400 bdls.
Capetown, 52
Carthagena, W.I., 1
Curacao, 100
Gibraltar, 290
Halifax, 100
Kingston, 100
,, Jam., 2
Las Palmas, 3,488 290
Limassol, 6
Montserrat, 5
New York, 70 81 4 cks.
Palma, 548
Pt. Natal, 575
Rotterdam, 500
St. John's, Nfld., 170 46
San Fernando, 200
Shanghai, 55 12
Singapore, 50
Smyrna, 1
Talcabuano, 1
Teneriffe, 729
Trinidad, 892
Valparaiso, 50
Buguma, 212
C. C. Castle, 115
Copenhagen, 40
Demerara, 1,460
E. London, 3
Malta, 30
Monrovia, 70
New Orleans, 450
Para, 100
Philadelphia, 100
Piræus, 180
Rangoon, 3 63
St. Kitts, 100
,, Lucia, 110
Savanilla, 2
Warre, 100

**Soda—**
Antofagasta, 5 kgs.

**Soda Alkali—**
Brantford, 40 brls.
Colborne, 15
Galatz, 85
Montreal, 100
Naples, 50
New York, 60
Smyrna, 35
Toronto, 185

**Soda Ash—**
Baltimore, 580 cks. 1,580 bgs.
Boston, 382 1,656
B. Ayres, 24 250 brls.
Calcutta, 81
Callao, 171 70 kgs.
E. London, 5 10
Havana, 2
Hiogo, 50
Montreal, 149 80
Newfairweather, 20
Oporto, 18
Philadelphia, 450 1,600
Rio de Janeiro, 114 brls.
Rosario, 43
Smyrna, 100
Yokohama, 145
Newfairwater, 2
N. York, 1,323 7,012 315 tcs.
Salonica, 150 brls.
San Francisco, 65
Valparaiso, 25

**Soda Crystals—**
Boston, 140 brls.
B. Ayres, 20 150 kgs. 18 cks.
Calcutta, 65
Hamilton 100
Hespelier, 47
Philadelphia, 280
Pt. Elizabeth, 50 20
San Sebastian, 40
Stratford, 6
Toronto, 200 40
Waterloo, 40
Woodstock, 100
Malta, 20
Montreal, 134 100 80
New York, 560
Valparaiso, 50

**Sodium Arseniate—**
New York, 6 cks.

**Sodium Biborate—**
Hamburg, 20 t. 17 c. 3 q. £6
Rotterdam, 3 12 3 1
Stettin, 6 16 1 1

**Sodium Bicarbonate—**
Alicante, 75 kgs.
Antwerp, 7
Calcutta, 620
Constantinople, 50
Halifax, 100
Kingston, Jam., 21
Madras, 20 bgs.
Montreal, 500 10 cks.
Nantes, 10
Para, 10
St. Petersburg, 300
Toronto, 350
Valencia, 135
Valparaiso, 20
Barcelona, 80
Bordeaux, 60
B. Ayres, 50
Hamburg, 40
Lisbon, 50
Mayaquez, 20
M. Video, 50
Rotterdam, 40
Seville, 30
Smyrna, 25
Victoria, B.C., 50

**Sodium Carbonate—**
New York, 308 brls.
Rio de Janeiro, 10 dms.
Boston, 84

**Sodium Chlorate—**
Antwerp, 20 kgs.
Genoa, 30
New York, 70
Rotterdam, 20

**Sodium Fluoride—**
Stettin, 5 t. £

**Sodium Nitrate—**
New York, 15 c. 1 q. £

**Sodium Oxide—**
Hamburg, 10 c. £

**Sodium Silicate—**
M. Video, 32 cks.
New York, 50
Oporto, 10
Barcelona, 135 brls.
Boston, 5
Rotterdam, 15
Valencia, 8

**Sodium Sulphate—**
Valencia, 50 cks.

**Sodium Sulphite—**
Leghorn, 16 brls.

**Stearine—**
Savanilla, 40 cs.

**Sulphur—**
Demerara, 7 t. 7 c. 3 q.
Philadelphia, 70 1
Boston, 200 8
Rouen, 20
Para, 10

**Sulphuric Acid—**
Santos, 2 t. 14 c. 2 [illegible]

**Superphosphate—**
Nantes, 220 t. 2 c. 3 [illegible]

**Tallow—**
Almeria, 9 cks.
Colombo, 10
Oporto, 30 brls. 25 tcs.
Santander, 60
Half Jack, 2 cks.
Salt Pond, 2
Santos, 1

**Tar—**
Genoa, 1,835 t.
Guayaquil, 25 dms.

**Tartaric Acid—**
Mayaquez, A
Bahia

**Tin Crystals—**
Trinidad, 1 t. 4 c. £82
**Turpentine—**
Antofagasta, 5 dms.
Para, 20
B. Ayres, 20 £9
**Varnish—**
Malta, 1 bx.
Montreal, 10 cks.
New York, 5 cs.
**White Lead—**
B. Ayres, 4 cks.

## HULL.

*Week ending October 22nd.*

**Alkali—**
Gothenburg, 1 bl.
Hamburg, 1 ck.
New York, 152 cs.
**Aniline—**
St. Petersburg, 4 cks.
**Benzol—**
Rotterdam, 25 cks.
**Bleaching Powder—**
Amsterdam, 10 cks.
Boston, 122
Kotka, 94
Stettin, 10
**Caustic Soda—**
Fiume, 18 dms.
Stettin, 120
Wyburg, 8 cks.
**Chemicals** (*otherwise undescribed*)
Antwerp, 24 cs. 1 ck. 20 kgs.
Amsterdam, 3 12 pkgs.
Alexandria, 12
Bordeaux, 20
Christiania, 10 cks. 5 pks.
Drontheim, 2 320 slbs.
Fiume, 30 pks.
Flushing, 18 pkgs.
Gothenburg, 7 cs. 21 cks. 10 pks.
Helsingfors, 6
Hamburg, 166 29
Libau, 10 kgs.
New York, 50 cs.
Rouen, 3 cks.
St. Petersburg, 20 cks.
Stettin, 10 cs. 11 20 kgs.
Trieste, 3
**Cottonseed Oil—**
Antwerp, 672 c.
Amsterdam, 299
Alexandria, 50
Bremen, 100
Bordeaux, 33
Flushing, 242
Gothenburg, 101
Hamburg, 1,356
Rotterdam, 1,297
Stettin, 399
Trieste, 1,057
**Creosote—**
Kyoge, 400 cks.
**Cresylic Acid—**
Bremen, 50 cks.
**Dyestuffs** (*otherwise undescribed*)
Bergen, 1 ck.
Gothenburg, 2 cs. 1
**Linseed Oil—**
Antwerp, 103 c.
Alexandria, 16
Bordeaux, 52
Bergen, 25
Christiania, 263
Drontheim, 17
Helsingfors, 154
Hamburg, 51
New York, 177
Rotterdam, 86
Stavanger, 35
Stettin, 998
Trieste, 147
**Manure—**
Rouen, 469 bgs.
**Mineral White—**
Harlingen, 40 t.
**Painters' Colours—**
Antwerp, 4 cs. 50 cks.
Amsterdam, 8 pkgs.
Alexandria, 382 dms.
Bremen, 1 cs.
Boston, 11 cks. 40 dms.
Christiansand, 124 cks.
Christiania, 64 dms.
Drontheim, 1 cs.
Dunkirk, 1 ck. 1
Fiume, 2 cks.
Flushing, 3 cs. 1 pkge.
Ghent, 13 cks.
Gothenburg, 2 cs.
Helsingfors, 13 cks.
Hamburg, 12
New York, 210
Rouen, 4
Riga, 50
Rotterdam, 3 cs. 1 ck.
St. Petersburg, 100 cks.
Stettin, 8
Trieste, 73
**Pitch—**
Antwerp, 90 t.
Dunkirk, 80
Wyburg, 25 cks.
**Salt—**
Hango, 5 kgs.
**Size—**
Flushing, 40 cks.
**Tallow—**
Flushing, 28 cks.
Gothenburg, 1
**Tar—**
Antwerp, 3 cks.
Amsterdam, 11
Rotterdam, 3
Stettin, 24
Wyburg, 20
**Turpentine—**
Alexandria, 1 ck.
**Varnish—**
Antwerp, 1 ck.
Hamburg, 8 cs. 1
**Waste Salt—**
Gothenburg, 15 cks.

## GLASGOW.

*Week ending October 27th.*

**Acid—**
Bombay, 26 t. 13 c. £240
**Ammonium Carbonate—**
Quebec, 2 t. £55
**Ammonium Sulphate—**
Valencia, 163 t. 16 c. £1,850
Nantes, 47 2¾ 470
La Rochelle, 70 9¾ 705
**Benzol—**
Rotterdam, 40 puns. £320
**Bichrome—**
Oporto, 5 t. 7 c. £240
Dunedin, 1 3 48
Antwerp, 15 10½ 560
Rouen, 4 17¾ 160
Gothenburg, 5 6¾ 17 lbs. 178
Christiania, 2 cks. 29
**Bleaching Powder—**
Calcutta, 25 t. £350
Melbourne, 67 12 c. 225
**Borax—**
Melbourne, 1 t. £31. 10s.
**Castor Oil—**
Adelaide, 2 t. 8 c. £36
Brisbane, 1¼ 22
**Caustic Soda—**
Dunedin, 1 t. 19 c. £21
**Chloride of Lime—**
Boston, 6 t. 7 c. £52
**Colours—**
Dunedin, 8 c. £28
**Cottonseed Oil—**
Fiume, 3 t. ¾ c. 16 lbs. £57
**Creosote—**
St. Malo, 100 t. £50
**Creosote Oil—**
Christiania, 30 cks. £13
**Dyestuffs—**
**Argols**
La Rochelle, 8 c. £4. 10s.
**Dyestuffs—**
**Extracts**
Montreal, 18 t. 15¾ c. £507
**Dyestuffs—**
**Fustic Extract**
Montreal, 1 t. 6½ c. £80
**Dyestuffs** (*otherwise undescribed*)
Quebec, £29
**Farina—**
Rotterdam, 1 t. 5 c. £15
**Iodine—**
Rotterdam, 1 ck. £236
**Linseed Oil—**
Rio de Janeiro, 8½ t. £187
Dunedin, 7 17 c. 197
Melbourne, 8 16 196
**Litharge—**
Quebec, 2 t. £32
Montreal, 8 18½ c. £128
**Magnesia—**
Quebec, 10¾ c. £20
**Magnesium Sulphate—**
Christiania, 5 t. £15
Bombay, 12 10 c. £48
**Manganese—**
New York, 10 t. 6 c. £98
**Nitrate of Lead—**
Montreal, 4 t. 6 c. £80
**Paint—**
Dunedin, 6 t. 17½ c. £136
Malta, 18½ 24 lbs. 20
New York, 2 2 37
Rotterdam, 1 11½ £30. 15s.
**Painters' Colours—**
Cape Colony, £35
Dunedin, 207
" 3 t. 1 c. 61
Bombay, 3 8¾ 60
**Paraffin Wax—**
Cape Colony, 1 t. 19 c. £52
Bilbao, 5 ½ 160
Malta, 12 2½ 410
Nantes, 2 ½ 61
Constantinople, 6 4½ 191
Christiania, 11½ 15
Bombay, 16 23
**Pitch—**
Oporto, 100 t. £80
Santander, 924 15 c. 1,248 8s.
La Rochelle, 302 18 302
Amsterdam, 100 150
Bombay, 40
**Potash Salts—**
Cape Colony, 35 t. £4,522
**Potassium Bichromate—**
Quebec, 3 t. 12¾ c. £145
Rotterdam, 21 cks. 275
**Potassium Carbonate—**
Bilbao, 1 t. 18¼ c. £44
**Sheep Dip—**
Dunedin, 2 t. 14 c. 4,675 galns. £855
**Soap—**
Dunedin, 12½ c. £20
**Soda—**
Montreal, 9 t. 16 c. £58
**Sodium Bichromate—**
Rouen, 14 t. 11¾ c. £306
Quebec, 12 7¾ 398
Montreal, 2 14½ 78
**Sodium Sulphate—**
Gothenburg, 2 t. 9 c. 14 lbs. £5
**Tar—**
Bombay, £40
**Tartar—**
Dunedin, 11 c. £41
**White Lead—**
Dunedin, 8¾ t. £186
Quebec, 9¾ 170
Montreal, 7 13¾ 133

## TYNE.

*Week ending October 22nd.*

**Alkali—**
Rotterdam, 5 t. 8 c.
**Alum Cake—**
Odense, 9 t. 19 c.
**Ammonia—**
Odessa, 25 t. 10 c.
**Ammonium Chloride—**
Constantinople, 1 t. 1 c.
**Antimony—**
Hamburg, 10 t.
Rotterdam, 10
Gothenburg, 1
**Barytes—**
Hamburg, 10 t.
St. Petersburg, 9 17 c.
Dunkirk, 4 16
**Bleaching Powder—**
Antwerp, 19 t. 5 c.
Hamburg, 55 8
Christiana, 5 13
Aalborg, 19
Horsens, 1 9
St. Petersburg, 287 5
Aarhuus, 10 1
Rotterdam, 9 4
Drontheim. 10 5
Copenhagen, 15 1
Gothenburg, 50 7
**Caustic Soda—**
Barcelona, 30 t.
Bilbao, 30 9 c.
Antwerp, 3 4
Hamburg, 56
Christiania, 17
Odessa, 297 2
St. Petersburg, 87 2
Copenhagen, 1 9
**Chemicals** (*otherwise undescribed*)
Stavanger, 1 t. 12 c.
**Copperas—**
Odense, 5 t. 4 c.
**Creosote—**
Aalborg, 7 c.
**Litharge—**
St. Petersburg, 1 t. 3 c.
**Manganese Oxide—**
Laurvig, ¼ c.
**Magnesium Sulphate—**
Gothenburg, 17 c.
**Magnesia—**
Barcelona, 6 t. 5 c.
Bilbao, 1 7
**Oxalic Acid—**
Barcelona, 11 t. 12 c.
**Paint—**
Bilbao, 6 c.
Hamburg, 11
Rotterdam, 1
**Soda—**
Constantinople, 5 t. 6 c.
Smyrna, 7 10
Antwerp, 2 12
Laurvig, 15 1
Odense, 11 15
Rotterdam, 10 15
**Soda Ash—**
St. Petersburg, 1 t. 6 c.
Copenhagen, 19 14
Gothenburg, 30 7
**Sodium Hyposulphite—**
Constantinople, 19 c.
**Sodium Sulphate—**
Christiania, 40 t.
Moss, 130 2 c.
Copenhagen, 10 1
**Sulphur—**
Antwerp, 11 t.
Hamburg, 70
Christiana, 50
Rotterdam, 10 1 c.
**Tallow—**
Hamburg, 2 t.
**White Lead—**
Smyrna, 1 c.
Copenhagen, 2 t. 11

## GOOLE.

*Week ending October 12th.*

**Benzol—**
Ghent, 32 dms.
Rotterdam, 48 cks.
**Bleaching Powder—**
Ghent, 30 cks.
**Chemicals** (*otherwise undescribed*)
Antwerp, 11 cks.
Ghent, 1 cs. 10
Rotterdam, 25
**Coal Products** (*otherwise undesc'd.*)
Boulogne, 27 cks.
Dunkirk, 78
Ghent, 6
**Dyestuffs** (*otherwise undescribed*)
Ghent, 6 cks.
Hamburg, 26
Rotterdam, 23
**Manure—**
Boulogne, 135 bgs.
Dunkirk, 669
Rotterdam, 200 1 ck.
**Pitch—**
Antwerp, 221 t.
**Superphosphate—**
Jersey, 130 t.

## GRIMSBY.

*Week ending October 15th.*

**Caoutchouc—**
Antwerp, 8 cs. 19 bls.
**Chemicals** (*otherwise undescribed*)
Dieppe, 8 cs. 98 pkgs.
Hamburg, 7 cs.
**Coal Products** (*otherwise undes.*)
Dieppe, 138 cks.

# PRICES CURRENT.

WEDNESDAY, Nov. 2nd, 1892.

PREPARED BY HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids :—** | | | | |
| Acetic, 25 °/₀ and 40 °/₀ | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | | 50/- | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3 |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 °/₀) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 10 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 1 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 10 | 1 | 3 |
| ,, ,, (grey) Hull | ,, | 10 | 1 | 3 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6½ |
| Aniline Salt ,, | ,, | 0 | 0 | 6 |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 3 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes :—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8 |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 9 |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 7 |
| ,, 50/90 ,, | ,, | 0 | 1 | 3½ |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 5 |
| ,, (crude 60°) | per gallon | 0 | 1 | 5 |
| Creosote (ordinary) | ,, | 0 | 0 | 1½ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 2 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 1 | 0 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 45 | 15 | 0 |
| ,, Sulphate | ,, | 15 | 0 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 15 | 0 |
| ,, Litharge Flake (ex ship) | ,, | 13 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 6 | 0 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 3 | 9 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 4 | 7½ |
| **Oils :—** | | | | |
| Cotton-seed | per ton | 18 | 10 | 0 |
| Linseed | ,, | 18 | 10 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 7½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 12 | 6 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 | 0 |
| Silver (metal) | per oz. | 0 | 3 | 2½ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 2 | 6 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 5 | 15 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 18 | 10 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 15 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Borate (Borax) | net, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | net pr. ton (10 ton lots) | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, (10 ton lots) | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 15 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 10½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¼ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 15 | 0 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7¼ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7½ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone : Best Quality (nominal) | ,, | 4 | 17 | 6 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 97 | 10 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 19 | 0 | 0 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# HEMICAL TRADE JOURNAL

AND

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## AN ANOMALY THAT NEEDS REDRESS.

"Nay, answer me: stand and unfold yourself."

IT is but a few weeks since reference was made in these columns to the critical state of the mineral oil trade of Scotland, but we must return to the subject yet once again. Anyone who has followed the action of the home producers in their dealings with our foreign rivals will have noticed of late a tacit surrendering of our assertive rights whenever proposals for creating combination prices were under discussion.

We have always been dubious as to the magnanimity of our foreign co-operators and erstwhile rivals, and our scepticism was re-echoed in our remarks regarding the results which were expected to follow the lowering of the selling price of paraffin wax. Unfortunately we have been justified of our opinion. Buyers did not rise to the bait as it was mutually understood they would.

In the prosperous days of an industry there are often many important facts suppressed "in the interest of trade," and when threatening evils can apparently be averted by a treaty with the enemy, the root of the evil still remains unexposed; though there may be those who are in a position to lay bare the conditions from which all the trouble has arisen.

When, however, negotiations fail, one of the contracting parties generally finds himself cornered, and then the truth long kept in the background leaks out. This seems to have been the case with the Scottish mineral oil trade, and we hope that the anomalies obtaining at the present may be removed in time to give the home industry a fair chance of recovery. That the introduction of cheap American petroleum has been the cause of the Scotch oil trade declining, and that there are an increasing number of accidents attending the use of petroleum as a source of light, are two complaints which have been fairly well harped on; and though the latter at first sight does not seem likely to improve the position of the former, it is in reality the one fact which, if thrust under the nose of the Government, will enable the Scottish industry to be nursed through its present state of weakness.

Anyone who has read or even glanced through the report of Messrs. Abel and Redwood on petroleum lamp accidents will notice that the general tone of the report leads one to the conclusion that the oils of low flashing point are as safe, if not safer, than those of high flashing point; while a careful perusal of the report reveals a distinct bias in favour of low flashing oils. The *raison d'être* of this does not require much looking for, and we leave it to our readers to exercise the acumen which we doubt not they possess.

The hollowness of most if not all of the arguments put forth in the report to which we have just referred has been ably shown up by Mr. D. R. Stewart in a paper which he read last week before the Scottish section of the Society of Chemical Industry.

A *resumé* of the paper will be found in our columns this week, and we would urge all those interested in the matter (and it affects the majority of our readers directly or indirectly) to give the paper a careful reading when it appears in its entirety in the journal of the society, as it contains a number of tables and figures which will well repay the attention bestowed on them.

When we say that the Government have been most unfortunate in their advisers, since they have been led to foster accidents, and do serious injury to a national industry by encouraging and legalizing the use of cheap American oils of low flash point, we have the matter in a nutshell. As a point of fact, the laws concerning the flash point of American oil should be much more stringent than those for Scotch oils, since there is every inducement for the American manufacturer to introduce as much naphtha as the law will possibly allow him to, because naphtha is of little or no value to him; while, on the other hand, Scotch makers are anxious to produce as much naphtha as they can, and consequently hardly ever produce a burning oil under a flash point of 100° F.

There is no need to deal with the arguments employed in this report in detail, as they are convincingly answered by Mr. Stewart in his paper; but we would emphasise one point which he raises. If these experts advise the Government that a flash point of 73° F. is sufficient to warrant the safety of an oil, and we are led to infer when we push their argument to its finality that a lower point would give increased safety, why does the Government *insist* on the oils for the War Office and lighthouses having respectively a minimum flash point of 105° and 145°? We are nothing if not consistent; how shall we bring these two points into line?

Most people are inclined to shirk their responsibility in matters of this kind, but they would be less inclined so to do if they would bear in mind that had the Government been advised to fix the standard at 100° F., the probabilities are that the Inflammable Liquids Bill would never have been brought forward, as the dangerous oils would have been kept out of the country, and all the time spent, and labour and inconvenience entailed in opposing the passing of the measure would have been spared.

Furthermore, while priding ourselves on our *esprit de corps*, we have rejected the home product, which could without effort comply with the 100° standard, and fixed on a flash point of 73° to benefit our rivals.

Such are the facts when expressed in a plain, unvarnished way. Are we to let the Government pursue the course which in their ignorance they have adopted? So far they have followed their advisers, but even the present chemist to the Petroleum Association is unable to support the arguments of these advisers.

Is not this the time, then, when an effort should be made to obtain from Parliament reliable statistics of the origin and flash point of those oils which have led to fatalities or fires, and thus demonstrate, as in the opinion of ourselves and many others it undoubtedly would, that the higher the flash point the safer the oil.

We think we may depend on those who can exercise influence, to use the same in furthering any such movement, especially as they will at the same time strengthen the hands of those who are striving to retain a time-honoured industry in this country. Now the ball has been started we would like to see the matter brought before the House of Commons as speedily as possible, and followed up persistently till the Government are driven to give their *locus standi* for avoiding such questions by stating "that there are not su grounds either of safety or convenience for an altera the existing flashing point for mineral oils." After th going it sounds anomalous, and an explanation wo highly gratifying to say the least.

## SOCIETY OF CHEMICAL INDUSTRY.

### LONDON SECTION.

THE first meeting of the session took place on Monday, Nov in the rooms of the Royal Society, the chairman of the sec William Thorpe, F.I.C., presiding. In a few preliminary anent the place in which the meeting was held, the chairm notice that the future meetings would be held in the room Chemical Society as heretofore. Mr. Watson Smith then read on a "New method for the preparation of nitrous oxide." reviewed the processes which had been proposed for the prepa this gas, such as the decomposition of dilute nitric acid b metals, the decomposition of ammonium nitrate by heat, mixture of ammonium chloride and potassium nitrate. Th being mindful of the statement that ammonium nitrate is decompose with explosive violence, or at any rate, to und manageable decomposition if the temperature rises too high, c the figures given by various standard works, as to the melting ammonium nitrate, and the temperature best suited for the s evolution of nitrous oxide. These being unsatisfactory, experi resorted to with the result that the melting point was fou 183° C, at 205° C, the first decided evolution of gas takes pla 215° C the decomposition proceeds rapidly. In the case of th of ammonium chloride and potassium nitrate, the decomp somewhat similar, and a reaction takes place, in which an nitrate is formed, which is then broken up into nitrous oxide a The new process suggested itself to the author during som ments made as follows: A small quantity of potassium ni fused in a dish and small pinches of ammonium sulphate or were projected on to the surface of the molten nitrate, deco at once took place with deflagration. A mixture of sodium ni ammonium sulphate was then tried in proportions, agreeing following equation:—$2\,Na\,NO_3 + (NH_4)_2\,SO_4 = Na_2\,SO_4 + 2\,N_2O$. On heating, the gas comes off very regularly and at higher temperature; for instance, at 240°, and without fusio mixture, the evolution of nitrous oxide is scarcely as rapid ammonium nitrate at 215° C. Other nitrates were tried, th showing the decomposition of a mixture containing lead n which case nitrous oxide is obtained instead of the well k fumes of nitrogen per-oxide. The yield of nitrous oxide i case is not quite equal to the theoretical amount, as the ex have only been tried on a small scale, but by stirring probabl yield would be obtained. Reasoning from the high tempe which the evolution of gas takes place and that without fu Watson Smith is inclined to believe that this decomposiri analagous to that of the ammonium chloride and potassiu mixture. During the discussion Mr. Cross suggested the formation of hydroxylamine.

The next paper was by the same author, entitled "N Schürmann's Reactions." This was an interesting paper, wh will do well to study at length, as opening up a large field for with possible industrial applications. The author has in some of Schürmann's re-actions and data on the relative sulphides of certain metals, not only with precipitated sulp with natural ones, in the hope of benefiting industrial or chemistry. Galena was taken and put into a sealed tube wi of copper, and heated for a couple of days. At the end of the colour of the solution had disappeared, and the black prec longer consisted of lead sulphide, but of copper sulphide. solution was one of lead acetate, and a specimen of the salt on evaporation was handed round for the inspection of the The copper sulphide was filtered off and converted int sulphate. The author showed the large field which these open up, by suggesting that if the galena contained silver, it entirely left in the copper sulphide precipitate, its separation, being an easy matter.

The meeting gave a hearty vote of thanks to the author fo papers.

The next paper was on the "Distillation of Wood," by Ramsay and Mr. J. C. Chorley. This was a continuation of read before the society in May of this year (*C. T. J.* 260, p. dealt with the distillation of jute, cotton wool, etc. The au that the temperature of wadding when distilled rises a

re of the bath employed, at one particular stage this point ut 325° C. "Medicated" cotton wool does not show this al re-action.

thors now leave the further investigation of these studies in of various workers, Mr. Cross promising to read a paper at ate on the formation of acetic acid and the influence of certain hich cause a yield of nearly 33%. A hearty vote of thanks discussion.

rer said he wished to correct an erroneous statement which forth, with respect to the financial condition of the last annual eeting in London, and he therefore brought the members a s. The outcourse of these figures showed that the guarantors ly be called upon to pay $\frac{1}{10}$ of the guarantee fund. The vas very well attended, about 140 members being present.

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MANCHESTER SECTION.

augural meeting of the session, 1892-93, was held at the Hotel on Friday, November 4. The chair was taken Levinstein, Esq., at 7.10 p.m., when he proceeded to give g address on "The work of the Manchester Section of the d of the Chemical Section of the Manchester Chamber of Com- He said that it was now ten years since this section of the Chemical Industry had been established in Manchester, and to the formation of the Chemical Section of the Manchester of Commerce. The good that had been done by this section . The patent laws, river pollution, emission of black smoke, ye-laws, and other subjects affecting chemical manufacturers discussed. As evidence of the good done a letter had been and had been read to them that evening, from the Manchester on stating that they admitted the importance of the resolution the Committee of the Society of Chemical Industry, and t in accordance with the suggestions therein put forward. .) Referring to the patent laws, he urged the necessity for nprovements. In Liverpool there was a society advocating tion of the American system *en bloc*. While, perhaps, not far he would like to see a more perfect system of examining the atter and some distinction between mechanical and chemical Patents evidently taken out in order to hinder *bonâ fide* should be weeded out. At present the general trade was especially the chemical trade; crude products were decreasing he by-products of coal distilling especially and many carbonizers spend operations. Again, the alkali trade was suffering from an competition. In ten years our exports to Germany had marvellously, while the exports of alkali from Germany had . He pointed out that the matter of freight was the great ich enabled us to maintain our supremacy, since the Germans raw material as low as we could. He then proceeded to the reason why the Germans beat us in so many things was he facilities for technical education in that country were so re perfect than they were here. The students here were turned eir colleges and schools hopelessly ignorant of any of the s which arise in the execution of a process on the manufac- le, and were therefore, as a rule, worse than useless to the rer. He contended that students should be put through a ich would enable them to carry out, in dyeing for instance, process, and produce samples which compared favourably est work in the trade, and not stamped with the imperfections ateur. He had been much struck by the words of Prof. when speaking 20 years back at the Free Trade Hall, as they he key note of the present situation. "We are at present in of one of those vast movements in which with a population ess of that we can feed, we are saved from a catastrophe he impossibility of feeding them solely by our possession of a of the markets of the world. And in order that that fair be retained it is absolutely necessary that we should be able e commodities which we can exchange with food-growing d which they will take rather than those of our rivals on the of their greater cheapness or their greater excellence."— .)

discussion which followed, and which it is not customary to r. Crippin bore out the remarks of the chairman in regard to t laws, and said the Government ought to exercise more amining the subject matter. In America intending patentees red to patents already existing, but though England, with the of Russia, had the heaviest patent fees, they left it to you o defend your patent if you had not made a sufficient examination of foregoing patents, and were accused of ent.

ewitt next took up the question of technical education. st returned from an inspection of technical schools on the , he was painfully alive to our deficiencies in this country in for technical education. The great fault was that here very e students were fit to become such, while in Germany they were most particular to ensure a technical student being well fitted to learn before they were allowed to become technical students. He said we were a century's work behind, and it was a wonder that we had managed to keep the lead as well as we had. He only hoped that the changes which were being made in the conduct of the Manchester and other schools would not be nullified through inability to render the schemes complete. In the matter of patents he said it was marvellous to see the amount of rubbish which the patent list consisted of, a good deal of which would never see light if the Government had to give greater protection to patentees.

Dr. Hartog called attention to the fact that teachers were often blamed for the deficiencies of technical students, but it was not all their fault. Dr. Hewitt had stated that in Germany students went for three years as apprentices in works, and then came back to the Technical School to finish, but this was almost impossible in this country owing to the diffidence with which manufacturers met such a system. Mr. H. Reynolds confirmed the remarks of Dr. Hewitt, and complained that students did not stay half long enough at school, or attend the Technical Schools long enough to learn properly, whereas in Switzerland it seemed about six years were spent learning after the student left school in the ordinary way. He strongly recommended steps for providing secondary education in order to correct this evil. Again, the paltry salaries which many schools were compelled to pay was owing to the scarcity of funds, and it was impossible to get good technical teachers unless a good salary was offered, especially as capable technical educators were exceptionally scarce, but few men being fitted to teach technological subjects. The few that do exist manufacturers generally secure by offering them a much higher salary to act as chemists to their works than the technical schools were able to pay. He also entered a very strong protest against the idea of multiplying these schools. One or two well fitted schools were all that were wanted, and the idea that each district ought to get its "share" out of the Government grants for technical education could not be too strongly deprecated. Dr. Hewitt expressed his appreciation of the last point raised by Mr. Reynolds, and wished more good could be got out of the Acts of Parliament which had been passed to assist education. Unfortunately, in this country he said, one political party seemed to endeavour to destroy as much as possible the work of the other. The chairman then briefly replied to the various issues which had been raised, after which he called on Mr. Dreyfus to read his paper on "The recovery of by-products from coke ovens." Dr. Drefus said the real cause of the depression in tar products was due to the large production of tar from coke ovens abroad. The decline in prices was clearly shown by the following:

| | Benzol. 50's. | Benzol. 90's. | Anthracene. | Sulphate of Ammonia. |
|---|---|---|---|---|
| Value, January, 1891 .. | 3s. 6d. | 4s. 8d. | 1s. 4d. | £10. 10s. |
| ,, ,, 1892 .. | 1s. 8d. | 2s. 0d. | 1s. 2d. | £10. 10s. |
| ,, Nov. 1, 1892 .. | 1s. 3d. | 1s. 6½d. | 0s. 9d. | £10. 10s. |

After a historical review of the industry the author gave a number of useful statistics concerning the style, number and production of the ovens abroad, after which he described the

SEMET-SOLVAY COKE OVENS,

Referring to which he said the cost of the oven itself, with fittings, steam ram, rails for the same, etc., can be estimated at £160. per oven. This figure is not high, considering the large production of coke, which amounts to 100 tons per month per oven. To this estimate must be added the cost of the apparatus for the recovery of the by-products, which is about £100. per oven. Each oven takes a charge of 4 tons of coal, and the coking is finished in 22 hours; the yield of coke is a maximum, and corresponds to the theoretical yield owing to the air tightness of the ovens.

At the Havré works, with coal containing 16 to 17 per cent. of volatile matter, the yield of coke averages 81 per cent.; in this figure are not included small coke and breezes. The coke is absolutely the same as that produced in ovens of the ordinary type; the bye-products vary in quantity, according to the nature of the coal used. At Havré, where poor coal is used, the average yields are: sulphate of ammonia, 13½lbs. per ton of coal used, and 31lbs. of tar. Through the kindness of Mr. Mond, Mr. Gustave Jarmay, managing director of the Northwich works, has communicated to me the following figures of the average yield of by-products obtained in the Semet-Solvay ovens in use at Northwich:—"For the last half-year we have recovered ammonia equal to 12 kilos. (27 lbs.) sulphate per ton of coal, and 40 kilos. (88 lbs.) of tar per ton. Our ovens are the oldest type of Semet-Solvay, and at present are out of repair, as we intend to replace them by the new type of Semet-Solvay ovens, and we quite expect that the yield of ammonia and tar will be better after the alterations."

THE EXTRACTION OF BENZOL.

It is now about three years ago, that besides tar and ammonia, Benzol was directly recovered from the gas of these ovens. The plant for this process has been devised by Mr. Frank Brunck, C.E., of Dortmund. The process is kept a secret, but my friend, Mr. George E.

Davis, and others who have studied this question years ago, will know probably what that secret consists of.

It is stated that the cost of erecting the Benzol recovery plant is £250. per oven, (the Brunck system) taking the present coke-ovens as 1,205. (I have been informed there are now 1,350 Hoffmann-Otto-ovens at work in Germany only, and that more are in course of construction). The quantity of coal these 1,205 ovens can coke per annum is 1,382,400 tons: taking only the minimum yield of three kilos. of Benzol per ton of coal, the yield in Benzol, from the gas alone would be 4,147,200 kilos., or over 1,000,000 gallons. I do not think there is quite as much as this quantity produced in Germany from coke-ovens as yet; all the ovens not being arranged to recover the Benzol from the gas, but I believe if we take Belgium and Germany together, there is not less than 1,000,000 gallons of Benzol, and principally 90's quality, produced at present already from coke-ovens alone; there is no doubt that this production of by-products is on the increase; because the Semet-Solvay system of ovens can be put down at a moderate figure, including the recovery of all by-products, tar, ammonia, and the extraction of the Benzol from the gas. The cost of an oven, including all, would be about £260.; the by-products after deducting supplementary costs, yield £72. per annum as net profit, (this does not include the extra profit from the extraction of the Benzol from the gas).

The recovery of by-products is not only of importance to the tar and colour industries, but it is of enormous value to agriculture. If we take into consideration the great profits realised in this industry, (notwithstanding the lower prices now ruling,) which on tar and ammonia alone are over 40% on the cost of the plant, and furthermore, if we add to this the profits on the Benzol from the gas, we come to the conclusion that this recovery of by-products from coke-ovens must go on increasingly. The demand for sulphate of ammonia and for tar is such that all the coke-ovens in Germany, and even in England, if they were to recover their products, would find a ready sale for them. The actual daily consumption of pitch in Westphalia alone is 150 tons, which would take already the tar of 3,000 ovens. If instead of the present system of working, gas were produced for sale by Semet-Solvay ovens, the coke could be used for metallurgical purposes and the gas could be produced much cheaper than at present. If, finally, all the coal used in factories, works, and houses for heating purposes, and for the production of power, were coked, the gas and the coke produced would be available for heating and lighting purposes; we would do away with fogs and smoky towns, and the cost would be less than at present. I throw these suggestions out and they merit the consideration of all thinking men whether politicians, sanitarians, engineers, chemists, or manufacturers.

The discussion which followed was brief, Dr. Hewitt making a few remarks, while Dr. Hartog feared that fog would still remain with us, as according to the classical researches of Aitken, even gaseous fuel produced fog. We think, however, the *status* would hardly be as bad as it now is, if only gaseous fuel were employed, though of course fogs will always exist in England while we have a "climate." Mr. Dreyfus replied, and after the usual votes of thanks, the meeting, which had been most interesting, terminated. There was a large attendance, including in its numbers Dr. Schunck and other prominent members of the Society.

## THE FLASH-POINT AND HEAT OF BURNING OF MINERAL OILS.

LAST week we gave in our report of the meeting of the Scottish Section of the Society of Chemical Industry, a brief review of the chief points touched upon by Mr. D. R. Stewart in a paper on the above title. The subject is one of such importance, however, that we have taken special means to obtain further information, which is contained in the following abstract of Mr. Stewart's paper, in which he explains what is meant by the flash-point, and complains of the lowness of the limit prescribed by Government.

The crude oils, whether shale or petroleum, from which our burning oils are manufactured, contain a considerable proportion of volatile oils, called spirit and naphtha, which vaporise or boil at comparatively low temperatures. These have to be separated in the refining of the oils, otherwise burning oils would flash or give off combustible vapours at ordinary temperaturers. The separation of this volatile spirit is a simple matter, happening of its own accord in distillation; and in Scotland in the manufacture of paraffin oil from shale there is no temptation to let any pass into the burning oil, for this spirit or naphtha is always in demand, and often commands a better price than burning oil. As far as is known Scotch manufacturers have kept the flash-point about 100 degs. as minimum whether naphtha was cheap or dear. Scotch paraffin oil generally flashes between 100 degs. and 125 degs. F. In America and elsewhere matters are different. Foreign petroleum is produced in such quantities that the naphtha production is far beyond what is required. There is therefore a great temptation to put in as much naphtha among the burning oil as possible. A great bulk of American petroleum is sent into this country between 73 and 80 degs. flash-point. The petroleum trade in America has been practically in the hands of one great organisation, which, of course, had no difficulty in believing that what suited it was good for the world. Manufacturers and merchants at home and abroad like to have freedom to sell a low flash lot of oil, if by any chance it should be made, and the Government does not want to hamper the trade, or do anything that would increase the cost of light unless they see undoubted danger. There is no great class whose interest it is to see that the flash is kept high enough, and great and powerful interests are all ranged on the other side, so that the interests and safety of the people are neglected, and the safety point fixed far too low.

The temperatures of 73 to 80 degs. are common summer temperatures, and even common winter temperatures in rooms after the lamps are lighted and the doors shut, particularly in the upper strata of the rooms, the position in which lamps are often placed, on the mantle-piece of the poor or the brackets of the rich. At these temperatures there is an explosive mixture over the surface of ordinary petroleum, whether in ship tank, barrel, tin can, or lamp fount; and so if a servant lass wishes her nearly-out fire in the summer to blaze up rapidly, and goes to the oil can and pours a little on the fire, as girls will persist in doing, there is great danger, if ordinary petroleum, of the flame running up the stream of oil and igniting the mixture of vapours and air in the can, blowing the can to bits, and the oil into spray, and having a great fire. With oil of 100 degs. flash there would be no danger in such a case. Or, if an attempt was made to charge the lamp while burning, as many people habitually do, the danger with ordinary petroleum would be very great, and with oil of 100 degs. flash practically *nil*.

The experts employed to advise the Government seem inclined to argue that the lower the flash point the safer the oil. The Government thus gives as it were a certificate of safety by admitting oils of low flash-point, but the foolishness of such an argument shows itself when these experts recommend metal reservoirs for lamps. The experiments of the author have shewn that the low flashing oils in metal reservoirs have the highest burning heats. Yet these experts in their report say "Moreover the heating of the oil does not necessarily increase the probability of the formation of an explosive mixture; on the contrary, any increased volatilisation resulting therefrom would have the effect of increased expulsion of air from the reservoir, so that the vaporous contents would be rendered inflammable instead of explosive. A lamp intended to be used with ordinary petroleum oil, and having an unprotected burner, is in the safest condition when the proportion of vapour to air is considerably in excess of that required to produce an explosion."

They say *safest*, when the oil, according to their showing, is heated far above its flash-point. Could any words of man bring out more distinctly the extreme danger of ordinary petroleum. Could anything more manifestly absurd be said than that there was any safety at all in such a state of matters. They themselves pointed out that many accidents were from oversetting, or from reservoir breaking. In the case of their so-called safest condition, if such accidents happened, there would be a sudden evolution of vapour all round, an explosion would certainly take place, and vigorous combustion ensue. Moreover before this safest condition could be reached by the heating of the lamp, in every case the state of greatest danger must be passed through. In a lamp full of oil the danger of an explosion might not be very great, yet still not insignificant, seeing the alarm it might cause, making people lose their presence of mind; but with a half-filled lamp being lighted, which many people habitually do, the danger remains a long time, probably for hours, and the explosion if it took place might be the sharpest possible, whether with 73 flashing oil or 88. This is not a matter in which it is necessary for experts to instruct us, for any person of common sense can judge just as well as they, if they have the most elementary knowledge of the laws of combustion.

The author made a number of tests upon various oils to ascertain the conditions of burning with high and low flashing oils. The conditions of the experiments aimed at making all the results exactly comparable, so that the same lamp with glass reservoir was used throughout.

A new piece of wick, clean and dry, and always of the same quality, was taken for each experiment. Changing the wick each time was the only way to get comparable results, but by this way we do not get the full difference of good and bad oil, for some bad oils are cumulative in their bad results, as the impurities accumlulate in the wick.

Wishing to get the highest temperature possible for each oil, so as to get the differences accentuated, a little tube was soldered to the metal outside the chimney, at the same level as the burner, mercury put in it, and a thermometer bulb in the mercury.

Further experiments were made, and the best means taken to get a high temperature with high flashing oils, as Abel and Redwood got for one experiment at any rate; but without success. The author then wrote to Sir Frederick Abel, asking him to give him a hint as to how to repeat his experiments; but Sir F. Abel answered that he was

altogether precluded at the time to give any attention to the subject, and that he had forwarded the letter to Mr. Redwood. Mr. Redwood, however, did not write and answer the question.

In conclusion, the author is of opinion that 100° F. should be the minimum limit for a flashing point if the oil is to be safe for domestic and general use, and he contends that unless American oil is brought up to that standard it is little short of a crime to sanction its use in this country.

## RIVER POLLUTION IN YORKSHIRE.

LAST week a deputation waited on Mr. H. H. Fowler, the President of the Local Government Board, petitioning for an inquiry into the best means of preventing River Pollution.

Mr. Milnes-Gaskell (vice-chairman of the West Riding County Council), who introduced the deputation, was supported by Dr. Kendall (chairman of the Sanitary Committee of the County Council) and by two other members of the County Council. Mr. Milnes-Gaskell stated that there were within the administrative county no less than 169 sanitary authorities. The condition of their rivers was very offensive, and they considered that this was very dangerous to the public health. There was only one good word to be said for them, and that was that they had not succeeded in fouling the ocean into which they flowed. The main sources of that pollution were three—the domestic sewage, the solid refuse, and the trade effluents, or the liquid pollutions as they were called. The case of trade effluents was very different from the case of the others, and they would like the powers which were obtained last session in the Act of the Mersey and Irwell Joint Committee to be granted to the whole country. He was not instructed to make any statement with regard to the formation of a Joint Conservancy Board for the West Riding, but they would give most careful consideration to any proposition that came from the county boroughs with regard to that matter. They asked that a Royal Commission might be appointed to inquire into the question of the pollution of rivers by trade effluents, and a standard of purity fixed.

Alderman Boothroyd (Mayor of Leeds) and Alderman Ward (chairman of the Sanitary Committee) said that they had been asked by the County Council to support the application stated by Mr. Gaskell. They also expressed their willingness to do everything in their power to act in concert with the parties interested for securing the improvement of the rivers.

Mr. Fowler said he should like to ask whether they were aware that a Royal Commission had already sat, and that the very standard for which they asked was fixed. It was appointed in 1868, and extended over a considerable number of years. He should like to know whether they were dissatisfied with the investigation of that Commission and that standard which was proposed.

Several members of the deputation expressed an opinion that the great increase in the industries of the district necessitated a fresh inquiry into the standard of purity in the rivers, and that the local authorities, which at present were only able to appeal to the Local Government Board, should have direct power granted them.

Alderman John Hill, on behalf of Bradford, said that the desire of the Corporation he represented had been, and still was, that the local authorities on the two rivers should be formed into a Conservancy Board to consult and advise as to the best course to be pursued for effecting the object which they all had in view, and for that reason he was there to support Mr. Milnes-Gaskell.

Mr. McGowen (Town Clerk of Bradford) stated that the rules in the standards laid down by the Commission to which Mr. Fowler had referred had been found not sufficiently practical as guides for the local authorities, and that this was felt so strongly to be the case that in 1871 he, with the Town Clerks of Leeds and Halifax, prepared a bill for a Conservancy Board for the Aire and Calder, and provided a scheme in which a standard of purity should be established, with power to increase its stringency as further knowledge was obtained. But as such a bill sought to levy a rate in aid of the expenses it was opposed by the landowners, and had to be withdrawn.

Mr. Fowler, in replying to the deputation, acknowledged that the Pollution of Rivers Prevention Act of 1876 did not extend so far as might be wished, but inasmuch as that measure was found at the time to be the most that could be done by a Government with a large majority, it would be difficult to get the measure very much altered, and indeed it would be hopeless to attempt doing so in the next session. He considered that it would be beyond his duty to suggest the establishment of any Commission on the subject they had been discussing. If granted it would probably be some years before they could report, and he must at once say that, so far as he was concerned, and speaking solely for himself, that part of their request could not be complied with. But as to the proposed joint Conservancy, what he would now do—knowing he was addressing hard-headed Yorkshiremen—was to recommend them to establish their Conservancy—do what they could there, and then if any fresh conditions occurred they would be in a position to seek for amended powers. He recommended the formation of the joint committee from the West Riding County Council and the county boroughs as the best body to consider a matter of this sort. Any assistance he could render the deputation for obtaining such a constituted authority as he had suggested he would readily place at their disposal. With regard to the suggested Royal Commission, he could not of course answer for his colleagues, and he only expressed his own personal unofficial opinion on the subject. The statements and arguments that had been put before him should receive his most careful consideration, and their application would be put in the proper quarter.

The members of the deputation, having thanked Mr. Fowler, then withdrew.

## NEW NICKEL MINERALS.

AN investigation has recently been made by Dr. S. H. Emmens upon some minerals with which he has met in the Sudbury mining district in the provinces of Ontario, Canada. He is of opinion that the three specimens which we are about to refer are different to any of the nickeliferous minerals hitherto described. The first of these new minerals he has called

FOLGERITE,

after Commodore W. Folger, chief of the Bureau of Ordnance, in the United States Naval Department, and who has distinguished himself in the utilization of nickel steel. This mineral was found on the Algoma branch of the Canadian Pacific Railroad, about 30 miles south-west of Sudbury in conjunction with pyrrhotite and chalcopyrite. This mineral is known locally as millerite, but it differs widely from that species. Its colour in the lump is a light bronze-yellow, but almost tin white when in fine grains. It gives a greyish black streak, is very brittle, and when the powdered mineral is heated in a closed tube no sublimation takes place. It dissolves in nitric acid forming a green solution, sulphur being separated. In large fragments or in the form of very fine powder it is non-magnetic. In minute *grains*, however, it is magnetic. An average sample from which the accompanying pyrrhotite had been separated by a magnet gave upon analysis the following percentage :—

| | |
|---|---|
| Nickel | 31·45 |
| Iron | 31·01 |
| Sulphur | 37·54 |
| | 100·00 |

The formula which practically corresponds to this analysis would be $NiFeS_3$. Its composition is midway between millerite and pentlandite, which have NiS and $NiFe_2S_4$ for their respective formulæ.

BLUEITE.

This mineral is found chiefly in the workings of the Emmens' Metal Company, and is locally styled "Jack's Tin." It occurs with niccolite, pyrrhotite, and chalcopyrite in the outcrop of a quartz vein cutting. The colour of the mineral is pale olive grey inclined to bronze. Its sp. gr is 4·2, it gives a black streak, it is brittle, having a subconchoidal fracture. When heated in a powdered state a sublimate of sulphur is obtained. It dissolves readily in nitric acid without the separation of sulphur, yielding a yellow solution. It is also non-magnetic. Upon analysis an average specimen was found to contain :—

| | |
|---|---|
| Nickel | 3·70 |
| Iron | 41·01 |
| Sulphur | 55·29 |
| | 100·00 |

which analysis would give the formulæ $Fe_{12}NiS_{20}$. The theoretical figures for such a formula being :—

| | |
|---|---|
| Nickel | 3·76 |
| Iron | 42·96 |
| Sulphur | 53·28 |
| | 100·00 |

WHARTONITE

is named after Mr. J. Wharton, of New Jersey, the eminent head of the nickel industry in America. The specimen examined by Dr. Emmens was obtained from the mines of the Dominion Mineral Company. The colour of the mineral is bronze-yellow. It also gives a black streak, and is brittle, breaking with an irregular fracture. Heated in the naked flame a sulphur flame is observed; when heated in a closed tube a sublimate of sulphur is formed; while again, in an

open tube fumes of $SO_2$ are given off. It dissolves in nitric acid, forming a greenish-yellow solution, sulphur separating out. The mineral can hardly be termed magnetic. The results obtained by analysis were as follows:—

| | |
|---|---|
| Nickel | 5·79 |
| Iron | 45·98 |
| Sulphur | 48·23 |
| | 100·00 |

The formula which corresponds to this analysis would be $Fe_7NiS_{10}$.

## FRUIT ACIDS.

It is well known that the acids to which different fruits, &c., owe their flavour have been the subject of chemical investigations, which have revealed the following facts:—The acid of the rhubarb stalk arises from the malic acid and binoxalate of potash which it contains. The acidity of the lemon, orange, and other species of the genus *Citrus* is caused by the abundance of citric acid which their juices contain; that of the cherry, plum, peach, apple, and pear from the malic acid in their pulp; that of gooseberries and currants, black, white and red, from a mixture of malic and citric acids; that of grapes from a mixture of malic and tartaric acids; that of the mango from citric acid and a very fugitive essential oil; that of the tamarind from a mixture of citric, malic, and tartaric acids; the flavour of asparagus from aspartic acid, found also in the root of the marshmallow; and that of the cucumber from a peculiar poisonous ingredient, called fungin, which is found in many species of fungi, and is the cause of the cucumber being objectionable to some persons.

It will be observed that rhubarb is the only product which contains binoxalate of potash in conjunction with an acid. It is this ingredient which renders rhubarb so wholesome at the early commencement of the summer, though in certain cases, known to medical men, its use may be injurious.

The following table, compiled from some analyses by Prof. Berard, shows the percentage average chemical composition of five unripe fruits and of eight ripe fruits, comprising apples, pears, gooseberries, grapes, plums, cherries, apricots, and peaches:—

| | Unripe. | Ripe. |
|---|---|---|
| Water | 85·7 | 78·7 |
| Albuminoids | 0·7 | 0·6 |
| Sugar | 4·0 | 12·9 |
| Vegetable acids | 1·5 | 1·3 |
| Pectose and gum | 4·3 | 3·7 |
| Cellulose, etc. | 3·8 | 2·8 |

The data thus given show that there is a considerable decrease in the watery particles of fruit as it approaches its full ripe character, resulting in a difference of 7 per cent., while the sugary constituents increase during maturation in a corresponding degree. rising from an average of 4 to nearly 13 per cent.

There is very little actual decrease in the percentage of acids from the green to the ripe stage of fruits, but the acidity becomes neutralised by the increase of sugar as the fruit approaches maturation.

Many persons know from experience how much more pleasant and agreeable fruit is when gathered and eaten direct from the tree. This is undoubtedly in part due to the freshness and briskness of the vegetable acids contained in the fruit, which, when so gathered and eaten, have not time to change into any other substance. Stale fruit, on the other hand, is unpalatable from the very fact that it has lost this pungent and brisk taste.

Pectose forms the substance known as vegetable jelly, and it is to this constituent of fruits that jams owe their firmness. Cellulose is the fibrous part of fruits, and this portion contains the largest proportion of mineral salts.

## THE ACTION OF ALKALIS ON GLASS.

By F. Foerster.

The following facts concerning the action of solutions of alkalies and acids upon glass, have been collected from the results obtained by the author and others who have experimented in this direction.

1. Solutions of caustic alkalies act upon glass much more strongly than water, since, except in very dilute solution, they dissolve all the constituents of the glass as such.

2. Of the caustic alkalies, the most active is caustic soda, then follows caustic potash, and then ammonia and baryta water.

3. Rise of temperature increases the action of the alkalies very considerably.

4. The action of the alkaline solution increases with the concentration at first rapidly, but afterwards only very slowly.

5. Highly concentrated solutions at the ordinary temperature have less action than more dilute ones.

6. Pure alkaline solutions, not too highly concentrated have less action upon glasses than such as have been rendered impure by small amounts of silicic acid.

7. Alkaline carbonates, even in very dilute solutions, attack glass much more strongly than water. Their mode of action corresponds rather with that of other salts than with that of the caustic alkalies. In equivalent concentration, solutions of sodium act more powerfully than those of potassium carbonate.

8. The action of salt solutions upon glass is made up in a manner which varies with the concentration and the kind of salt, of the action of the water itself, and that of the salt which is present.

9. Both these modes of attack are differently influenced by the composition of the glass.

10. Those salts act more strongly than water whose acids form insoluble lime salts. The action of these increases with concentration.

## IMPROVEMENT IN THE MANUFACTURE OF METALLIC SODIUM.

By H. N. Warren.

In the general process for the manufacture of metallic sodium, one of the greatest drawbacks at the present time is the difficulty of expelling the sodium in the form of vapour as quickly as reduced, insomuch that, for a considerable time after a most intense heat has been obtained, on viewing the inside of the converters, large globules of sodium are not unfrequently observed, which are only with difficulty volatilised. Potassium, on the other hand, although presenting more difficulties than sodium as regards its preparation, melts, and volatilises at a much lower temperature; for instance, if 23 parts by weight of sodium be carefully alloyed with 29 parts of potassium, a fluid amalgam is produced, which remains liquid at all ordinary temperatures. If this amalgam is now distilled in a non-oxydising atmosphere in the first instance potassium metal distils over, leaving a residue consisting of sodium containing about 5 or 6 per cent. of potassium. This alloy, which resembles ordinary sodium in appearance, is much more energetic than that substance itself, taking fire when thrown upon the surface of water the same as potassium, but burning with the characteristic yellow flame of the former. Following these reactions various charges were next operated upon, obtained by the incineration of the alkaline tartrates, sodium tartrate in admixture with a sufficiency of potassium salt so as to allow of the above-mentioned percentage of potassium to pass into the distillate being amongst the first.

The distillate thus obtained possessed far more energetic properties than pure sodium, melting at a much lower temperature and being considerably more volatile. A series of small converters arranged in groups and containing various percentages of mixed calcined tartrates were thus operated upon, the converters at the termination of each reaction being cut longitudinally, and in no instance could any reduced metal be detected; the alkali metals thus formed having been entirely volatilised, producing the aforesaid alloy.

The calcining of tartrates on a large scale would naturally be entirely out of place; but the introduction of potassium could, as far as can be seen, be brought into play when employing any of the ordinary commercial methods, save that the percentage of the two would probably require a somewhat closer study, in order to obtain concordant results.

# Legal Intelligence.

## SUPREME COURT OF JUDICATURE.

### COURT OF APPEAL.

(*Before Lords Justices Lindley, Lopes, and Smith.*)

Gadd *v.* Mayor of Manchester.

The above Lords Justices recently gave their judgment on the appeal against the decision of Mr. Justice Kekewich. The case raised several interesting points of patent law which may be of value as well as of interest to our readers.

The original action was brought to restrain the alleged infringement by the defendants of a patent granted to the plaintiffs for an invention for regulating the rise and fall of gasometers. The defendants pleaded the usual defences—no infringement, no subject matter, want of novelty, and want of conformity between the complete and provisional specification. They alleged that the plaintiff's patent had been anticipated (*inter alia*) by Malam's patent in 1823, by Wild's patent in

, and by Standfield's patent in 1883, and also by the publication of nilar invention by Mr. James Terrace shortly before the plaintiffs obtained provisional protection for their invention.

he judgment of Lord Justice Lopes was written, in which he said :— entirely concur with the judgments delivered on all points, except he point of subject matter. The plaintiff has applied to gasometers is complete specification the principle, to my mind, indistinguishable that applied by Wild and Standfield to things of an analogous l, viz., to floating docks and pontoons, the object being the same, to keep the things operated upon upright, and their bases zontal. Then the question arises whether the application of the e principle to another thing of an analogous kind is subject matter nvention. The answer is in the affirmative if there is sufficient cise of the inventive faculty in the application or adaptation. I e difficulty in finding in this case any such exercise by the plaintiff ne required inventive faculty. I doubt whether, if any competent on conversant with such matters had been shown Wild's and ıdfield's patents, and had been asked to apply the principle of those nts to gasometers, he would not readily and without the exercise of patentable ingenuity have been able to do so. It is therefore with it hesitation that I assent to the judgments arrived at in this case on point of subject matter.

Lord Justice Lindley in delivering judgment, said the cases ran very r the border line as regards subject matter and novelty, and he ted cases which have shown that the following points hold good.

. A patent for the mere new use of a known contrivance without additional ingenuity in overcoming fresh difficulties is bad, and not be supported. If the new use involves no ingenuity, but is in nner and purpose analogous to the old use, although not quite the ne, there is no invention, no manner of new manufacture, within the aning of the statute of James. 2. On the other hand, a patent for ew use of a known contrivance is good, and can be supported, if the w use involves practical difficulties which the patentee has been the t to see and overcome by some ingenuity of his own. An improved ng produced by a new and ingenious application of a known contrance to an old thing is a manner of new manufacture within the aning of the statute. Under which of these rules any particular se falls depends on its own special circumstances, and is often a estion of very great difficulty, giving rise to considerable difference of inion, as in the well-known bustle case, "American Braided Wire mpany *v.* Thomson" (6 Part. Rep., 518). But the rules themlves are intelligible enough. Their application involves a correct timate of the degree of ingenuity which amounts to invention. he difficulty of saying where invention sufficient to support a tent exists, and where it does not, is well known to all persons nversant with patent law. This Court had occasion to grapple ith this difficulty in the recent case of "Lane-Fox *v.* Kensingn Electric Light Company" (8 *The Times* L. R., p. 798), and cannot myself throw further light upon the subject than is to be tained from the decision in that case. If, practically speaking, there e no difficulties to be overcome in adapting an old contrivance to a w purpose there can be no ingenuity in overcoming them ; there will no invention, and the first rule will apply. The same rule will, I prehend, also apply to cases in which the mode of over-coming the -called difficulties is so obvious to everyone of ordinary intelligence d acquaintance with the subject matter of the patent as to present no fficulty to any such person. Such cases present no real difficulty to ople conversant with the matter in hand, and admit of no sufficient genuity to support a patent.

In accordance with the principle that when a patent was rather near e border line, it should be held good and not bad, the plaintiff was, his opinion, entitled to succeed.

The attack on the plaintiff's patent had failed, and he was entitled to lief, therefore the judgment of the court below should be reversed. plaintiff so desired, he was entitled to an injunction to restrain the fendants from erecting any other gasometer according to plaintiff's tent, and he was also entitled to damages and to the costs both of the tion and of the appeal.

*Before the Master of the Rolls, Lord Justice Lopes, and Lord Justice Kay.*)

PATERSON *v.* BLACKBURN CORPORATION.

On Tuesday the hearing of the adjourned appeal by the Corporation f Blackburn, as the gas authority in that town, for judgment or a new ial from a verdict and judgment of Mr. Justice Denman and a special ry at Manchester Assizes in July, in an action at the suit of the widow f James Paterson, who, while passing through the street, was killed a gas explosion in November, 1891, was resumed. Mr. Bigham, .C.. said the claim in the case for which judgment was given was 600., but between £20,000. and £30,000. depended on the decision, even people having been killed and several injured. A committee of allholders in Blackburn market had for some years been supplied with as which came through a meter fixed in the cellar of the Crown Inn. he chairman of the committee, thinking of ceasing this supply, saw the chief collector of the gas undertaking, and asked him to have the gas cut off. The Corporation accordingly sent and plugged the supply pipe from the main, leaving, however, some inches of pipe exposed under, as they submitted, the impression that the cutting off was not to be permanent, but in order to induce the stall-holders to pay their bills. The meter having been sold, two unskilled men went to remove it, and damaging the plugging the gas escaped, and whilst the men ran to the gas office to obtain assistance the explosion occurred, and Paterson, while passing in the street, was killed. Mr. Bigham argued against the contention for the widow that the Corporation were negligent. Incidentally Lord Justice Lopes said the case came before a Liverpool special jury, and they ought to be able to appreciate a case like this. Not quite so good a special jury, said Mr. Bigham, as a Liverpool special jury. The trial was at Manchester. You must not speak too strongly on that point, said the Master of the Rolls. "I know something about both kinds of jury, and if you want a decision where anything connected with machinery is concerned, a Manchester special jury is as good as you can get at Liverpool."—At the close of several hours' arguments, the Court, without calling on Mr. Gully, Q.C., dismissed the appeal, holding in effect that there had been negligence by the Corporation in not properly cutting off so explosive and dangerous a product as gas, so that the owner of the meter might do as he liked with it without danger in its removal to the general public, of whom the deceased was one.

## HIGH COURT OF JUSTICE.
### QUEEN'S BENCH DIVISION.

(*Before Mr. Justice Mathew and Mr. Justice Bruce.*)

SEDGWICK APPELLANT, SUNDERLAND GAS CO., RESPONDENT.

This appeal case is one of some interest to the whole of the Sulphate of Ammonia Industry. It has arisen from an information presented to the Sunderland Magistrates that the Sunderland Gas Co., were using a still without paying a licence for so doing contrary to the statute. The Sunderland magistrates came to the conclusion that a sulphate of ammonia apparatus was not a still within the meaning of the Act. Against this decision the Officer of Inland Revenue appealed, and the appeal was heard in the Royal Courts of Justice on the 27th of October last. Mr. Dankwerts appearing as counsel for the appellant, and Mr. Moulton, Q.C., and Mr. Blake Odgers appearing as counsel for the respondent's company.

In opening the case Mr. Dankwerts endeavoured to make the scientific part of his case as clear as possible to his Lordship, but in the course of a speech of an hour's duration all seemed to turn upon the fact that patentees generally called the apparatus a still, and that in general language in the works it was called a still. After a long argument on both sides Mr. Dankwerts opened up a new contention. It was, he said, a fact that the Sunderland magistrates had refused to convict on the ground that there was no condensing appliances in connection with the still, that is to say no separate condenser, but he opened for the first time the argument that the saturator had of necessity a process of condensation going on within it, and that the liming chamber also produced some condensation, and he finally asked that the case might be remitted to the magistrates for definite answers to each point raised. To this the Court assented. Mr. Justice Mathew added that "if the magistrates think fit to hear further evidence, you ought not, it appears to me, to put any difficulty in the way, seeing that we want only the practical result." Mr. Dankwerts agreed to this and the case was therefore remitted.

It is probable that we shall not have heard the last of this case before the end of the year.

# NOTICES.

## LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of
THE CHEMICAL TRADE JOURNAL
From
MR. JOHN HEYWOOD,
2, Amen Corner,
Paternoster Row, E.C.,
On usual trade terms.

## FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed* MONEY ORDER is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country

### *ANSWERS TO CORRESPONDENTS.*

E. R. and Son.—There was a letter on the subject by Sir H. E. Roscoe, addressed to the Joint Rivers Committee. It appeared in the proceedings of that committee reported in this Journal, No. 238, p. 362, Vol. IX. This is the only letter which we have knowledge of.

J. M.—We thank you for the paper and particulars.

J. E. B. (Termonde)—Give it a trial.

A. F. and Co.—We shall be pleased to hear from you again.

C. B.—Please inform us if you receive it aright this week and oblige.

W. F. C.—The change has been duly made.

G. T.—The table has appeared in Vol. VIII.

S. M. and Co.—The block is not yet to hand.

A. S. (N. Y).—Thanks for notice.

A. G. (New Zealand)—Letter and reports safely to hand, for which many thanks. We should like to have the reports regularly if possible.

# Trade Notes.

Explosion at an Oil Refinery.—Last week, a destructive explosion took place at the oil refinery of Messrs. Dussex and Co., Old Kent-road, London. No lives were lost, but there were several casualties among the workmen, who fled from the works. The explosion set fire to a quantity of oil, and the furniture was removed from a number of houses adjoining the works. The roof of an adjacent soap works was demolished by a falling wall.

The Manufacturing Chemist.—A monthly Journal chiefly devoted to the drug trade says:—The leading Journals of Oct. 21st, 1892, have a long and interesting article upon a new departure in the Alkali Trade. Messrs. Brunner, Mond and Co., were written to, asking for fuller and authenticated particulars as to the origin and manufacture. In their reply of the 22nd, they wrote that the article in the *Times* "did not emanate from them."

The St. Helens Gas.—At the last meeting of the St. Helens Gas and Lighting Committee the manager reported that in the month of September 15,623,900 cubic feet of gas had been produced of an average illuminating power of 18·43 candle power. The committee resolved that the Assistant Medical Officer of Health be paid £10. per annum to test and report upon the gas as supplied to the Town Hall every month. The tender of Mr. Thomas Norman for 45 tons of tar was accepted.

The Chemical Industry.—The Strassfurt Chemical Company (late Vorster and Grüneberg) made a profit in the last financial year of £15,874. as compared with £15,937, in the previous year, and the Döhlen Chemical Company £332. During September the imports of alkali from Great Britain amounted to 10,787 cwts., as against 7,963 cwts. in September, 1891.—The annual meeting of soda manufacturers is to be held in Berlin, on the 9th November. The Harburg-Strassfurt Chemical Company (late Messrs. Thörl and Heidtmann) made a profit in the last financial year of £4,810. as compared with £5,769. in the previous year.

New Gas Works.—The Danish Gas Company, which is an English company, is at present constructing a new gas works about two miles outside Copenhagen, to supply gas to the Strandvic district. The works are being erected according to the most modern designs, and labour-saving arrangements are being adopted. Between the works and the harbour a tramway for the transport of coal is being put down. The gas-holder has been manufactured in Germany. There are already over 1,000 customers for the gas, and the works are estimated to cost £40,000.

Sewage Works.—At a recent meeting of the Wirksworth Local Board, at Wirksworth, Derbyshire, it was decided to adopt the International Water and Sewage Purification Company's system of sewage purification. Mr. T. S. McCallum, of Manchester, was selected as the engineer to construct the necessary works. The Chesterfield Rural Sanitary Authority have instructed Mr. W. H. Radford, of Nottingham, to act as consulting engineer and report on a scheme drawn up by Mr. Robinson, their surveyor, for the sewerage and sewage disposal of Ashover, Derbyshire.

Aluminium Phosphate.—The treatment of phosphorites or other minerals containing aluminium phosphate has been made the subject of a patent by C. Glaser, of Maryland, U.S.A. He treats the mineral in a finely powdered state with hot or cold alkaline solution, or with a hot solution of an alkaline carbonate or phosphate until the aluminium phosphate is dissolved out. The solution is then separated from the residue and the aluminium phosphate precipitated by treatment with carbonic acid gas, or if the solution has been made with a carbonate or phosphate by simply cooling. The precipitated phosphate is best separated by means of a filter press and is then ready for use, while the dissolving solution may be regenerated with lime, wherby the alkaline solvent is obtained or by simply heating it when the carbonate is obtained.

Utilising Waste Acid.—Hitherto the acids employed in the rectification of tar and oils have been allowed to run to waste. A process has recently been devised by H. Steir, in which he claims by combining these acids with argillaceous substances he obtains a crude sulphate of alumina which can be employed with advantage for several purposes, or sold as crude sulphate. The process may be conducted in three different ways, which may be briefly stated thus:—The acid is employed with a quantity of argillaceous schist and heated, the crude sulphate of alumina is formed giving a solution of crude sulphate of alumina. The residue containing the organic and other matters previously contained in the acids is left. Or the acid is made to act upon a similar schist out of contact with the air in much the same way as just described, it being claimed that by this means a purer solution of sulphate of alumina is obtained, and lastly, after treatment with acid the residue is calcined, thus destroying the organic matter that is present, and giving a solution which is almost absolutely clear, while the mineral matters remain as a residue. The process has been patented in France.

## THE COMPOSITION OF AN ORANGE.

The latest bulletin of the Florida Experiment Station gives the result of a number of analysis of oranges made during the past year. The oranges were contributed by Rev. Lyman Phelps and Mr. H. S. Williams. The bitter-sweet and sour oranges, as grown in Lake City, were also analysed, and the following table gives the average composition of all the oranges examined:—

COMPOSITION.

| | | (a) | (b) |
|---|---|---|---|
| Moisture .. .. .. | per cent. | 87 710 | — |
| Organic Matter (exclusive of nitrogen) .. | ,, | ·246 | — |
| Nitrogen .. .. .. | ,, | 11·124 | — |
| Silica .. .. .. .. | ,, | ·009 | 1·00 |
| Sulphuric acid .. .. | ,, | ·042 | 4·86 |
| Phosphoric acid .. .. | ,, | ·077 | 8·63 |
| Ferric oxide .. .. .. | ,, | ·006 | 0·68 |
| Lime .. .. .. .. | ,, | ·207 | 0·916 22·77 |
| Magnesia .. .. .. | ,, | ·045 | 5·01 |
| Potash .. .. .. .. | ,, | ·479 | 52·05 |
| Soda .. .. .. .. | ,, | ·039 | 4·26 |
| Chlorine .. .. .. | ,, | ·011 | 1·23 |
| | | 99·996 | 100·49 |
| Less oxygen for chlorine .. .. .. .. | | | 28 |
| | | | 100·21 |

Column (a) gives the percentage of the constituents in the fresh orange as a whole; (b) those in the pure, dry ash.

Our analyses of the ashes gives sulphuric acid 3·3 to 6·8 per cent.; average, 4·86 per cent.; phosphoric acid, 7·5 to 9·8 per cent.; average, 8·6 per cent; lime 13 to 32 per cent.; average, 22·77 per cent.; potash, 42 to 59 per cent.; average, 52 per cent; magnesia, 3·5 to 6·4 per cent.; average, 5 per cent.; soda, 2·8 to 5·5 per cent.; average, 4·26 per cent.

WEIGHT OF PEEL IN FLORIDA AND CALIFORNIA ORANGES.

Last year Professor E. W. Hilgard made an analysis of California oranges of the crop of 1891, which was published in the Pacific Rural Press of July 11, 1891. He analysed 22 samples, from which we exclude three because they were coarse seedlings. The average percentage of weight of peel to the entire orange in the nineteen samples was 26·22. The Florida Experiment Station (Mr. J. J. Earle) analysed fifteen, from which we also exclude three seedlings for the same reason. The average percentage of weight of peel in the twelve samples was 21·25.

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

Benzol is still very weak, and though 90's are quoted at 1s. 7d., 50's is certainly not more than 1s. 3d., perhaps 1s. 2½d. Anthracene: Prices show no change, though it looks as if all the efforts which are being made to improve the position were this time likely to lead to some result, if not success. We understand that one more British alizarine manufacturer has closed his works, so that the alizarine makers in the world can now nearly be counted on the fingers of one hand. This is not a very cheerful look-out for the anthracene makers,

haps we had better say—the gas companies. There is no change ort in other tar products.

: sulphate of ammonia market is without change and continues teady, prices being well maintained. The dealers are picking up arcels offering at full prices, although at the same time they are vouring to depress the market by fictitious quotations, but so far at success. To-day's quotations are £10. 2s. 6d. at all ports, gh it is reported (without definite confirmation, however,) that ss has taken place at Leith at £10.

## REPORT ON MANURE MATERIAL.

ere has been a moderate business doing during the week, but no activity, and prices, excepting for nitrate, do not show any ce upon those last reported.

rida phosphate rock, 75/80%, offers freely at 8¼d. per unit c.i.f. K., early shipment and shipment over next year, but there is no disposition to buy at the price. Peace River rock is quoted 7d. nit, c.i.f. to U.K., but with hot-air dried Bull River offering at per unit, buyers are not disposed to pay the higher price for : River. River Plate bone ash is very little enquired for, and £3. %, nett Hamburg terms, is probably the nearest value.

ere are sellers of River Plate bone cargoes at £4. 5s. per ton, ered good U.K. port, but buyers seem now inclined to hold off. arly shipment £4 would still be accepted for crushed Kurrachee , and something less for Calcuttas, but there are no sellers of ay bone meal for shipment, at under £4. 5s. per ton, ex quay pool. Charring bones are enquired for, and £4. 2s. 6d. to £4. 5s. d readily be paid for good to fine parcels, ex quay Liverpool.

ere has been more activity in the nitrate market, and some advance een scored during the week. On spot inferior quality may still be t 8s. 10½d. per cwt., but for good to refined 9s. to 9s. 3d. is red. Due cargoes are worth fully 9s. to 9s. 1½d., and October-mber shipments cannot now be bought under 9s. 4½d.

## THE METAL MARKETS.

NDON, WEDNESDAY.—Pig iron quiet. Scotch warrants closed s. 4d. cash. Middlesbrough 37s. 1½d. cash, and Hematite 46s. l. cash. Copper steady: Chili bars, G.O.B.'s and G.M.B.'s l at £45. 10s. cash, and £46. to £46. 7s. 6d. three months. Tin y. Straits closed at £94. 17s. 6d. to £95. 7s. 6d. cash, and £95. d. to £95. 5s. three months. Australian, £95 7s. 6d. cash. sh ingots, £97. 10s. to £98. Lead easier: Spanish, £10. 2s. 6d. 10. 3s. 9d. English, £10. 5s. to £10. 10s. Silesian spelter: ary, £18. 17s. 6d. to £18. 18s. 9d. Quicksilver: First hands, os., second hands, £6. 7s. 6d. *Copper shares* weak; Cape, 1⅝ ; Copiapo, 2⅛ to 2⅜; Libiola, 3⅛ to 3⅜; Mason and , 2⅞ to 3; Rio Tinto, 15¾ to 15⅞; Tharsis, 4 9/16 to 4 11/16; qua, ⅝ to ¾; Panulcillo, ⅜ to ½.

LVERHAMPTON, WEDNESDAY.—Finished iron quiet but ; crude iron maintains the recent improvement. Steel stamping , singles, £9. 10s.; doubles, £10. 10s.; lattens, £11. 10s. Nail , £6. 10s. to £7. Girders, £6.; steel wire rods, £6. 10s.; d bars £8., second-class branded sorts £7., common £5. 12s. wards. Sheets, singles £7., doubles £7. 7s. 6d., lattens, £8. dshire all-mine hot blast pigs 62s. 6d., cinder pigs 37s.

ASGOW, WEDNESDAY.—Market firm, with good business. done at 41s. 3½d., 41s. 5d. and 41s. 4½d. cash, also at 41s. d 41s. 7d., one month; closing with buyers at 41s. 4d. cash, s. 6½d. one month; sellers ask ½d. more. Middlesbrough with buyers at 37s. 1½d. cash; sellers ask 37s. 4½d. Hematite with buyers at 46s. 10½d. cash; sellers ask 47s. 3d.

## LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

S.—Palm oil: On spot there is little offering and the market is Chief sales include Bonny £20. 17s 6d., Accra £20. 12s. 6d., nd £19. 17s. 6d., all transit. Olive is steady but quiet at £35. £40. per tun. The demand is limited.

There has been a fair business doing in linseed at 19s. 6d. to 20s. per cwt. in export casks. Cottonseed: Liverpool remains steady at 18s. 3d., and there has been a fair business doing at that figure. American has been firm at 24s. per cwt., but to-day there is none offering. Castor oil: Owing to fresh arrivals, good seconds Calcutta has been quoted 2⅜d, and to-day is firm and in good demand at 2 5/16d. per lb. First pressure French is quoted 2⅝d. to 2 11/16d. per lb. Tallow is firm generally, and there is a fairly good business doing in North American at 24s. to 25s. 6d., and South American 27s. 6d. to 28s. per cwt. Resin, common, is quoted 4s. 3d. per cwt., an advance of 6d. since October 13th. There is a fairly good all-round enquiry. Spirits of Turpentine are quoted to-day 22s. per cwt., which price has ruled during most of the week. The market is steady. Petroleum is in good request at current value.

COLOURS are unaltered. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s., medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20.

## THE LIVERPOOL MINERAL MARKET.

The market has ruled pretty firm this week. Manganese: Arrivals have fallen off considerably, whilst stocks are very low. Prices, both for prompt and forward, have very much increased. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump) unaltered. Raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand), in good demand; lump 20s., seconds 16s., and thirds 12s. French chalk: Arrivals steady, whilst prices are unaltered, with a good demand. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump, none offering; nuts, 70s. to 80s.; whilst finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, with little doing. Bilbao, Irish, and Cumberland easier. Santander and manganiferous quiet. Emerystone: Best quality in good demand, both for home and export. No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth continues quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal in good demand, and prices are firm. Chrome ore: There is more doing, and prices are firm. Antimony ore steady at £12., and metal £43. to £44. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese steady. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) steady; finest quality 22s. to 23s.

## TYNE CHEMICAL REPORT.

TUESDAY.

In chemicals the market is fairly steady. Bleaching powder £7. 10s. per ton. Sulphur scarce at £5. per ton. Caustic soda, 76/77, £11. 10s. per ton. Chlorate has improved in value, and is now quoted 8¼d. per lb. for prompt.

Bleaching powder, softs, £7. 10s. per ton nett; hards, £7. 15s. per ton; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £5. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw. £3. per ton, 100° Tw. £4. per ton, 140° Tw. £4. 7s. 6d. per ton; soda crystals, in casks, £2. 17s. 6d. per ton gross weight, in 2 cwt. bags, £2. 17s. 6d. per ton nett weight; chlorate of potash, 8¼d. per lb. for prompt, 7⅜d. and 8d. for December; pearl hardening, £3. 10s. per ton nett; pure white sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta

crystals, £19. per ton; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; hydrate of barium, £11. per ton.

South Durham salt, quiet at 10s. 1d. per ton f.o.b. Tees.

Coals: There is practically no change in prices. Best Northumbrian steam 9s. 6d. per ton. Small steam 3s. 9d. to 4s. 3d. per ton. Gas coals in strong demand, 7s. 6d. to 8s. per ton. Bunker coals dull. Coke steady at 15s. 6d. to 16s. per ton.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, Tuesday.

Paraffin scale and wax are set down in list of prices below at 2d. and 2½d., but buyers might reckon on at least some of the makers parting for still less. The agreement with the American producers has been formally declared dead, the final word coming from the Americans themselves, and since that competition has bordered on the stage of panic. This will subside whenever stocks are reduced to manageable proportions, and prices will find true market level then; but it is calculated that the falling off in the case of the Scotch industry alone (and confining the reckoning to solids only), cannot be less than £150,000. As a set-off, the demand is likely to be enlarged, the chief consumers, the candle makers, having booked heavily since the break of raw material values, which has also extended to the finished product. In the liquid department of this section, there is no change, except to the extent of rather better values for 865° oils, which grow in demand for gas making.

In ordinary chemicals, with the exception of chlorate of potash which makes a further rise, the feeling is again easier, both bleaching powder and soda crystals being fractionally cheaper.

The tone of sulphate of ammonia to-day is scarcely so promising as it was a week ago, and prompt quotation is rather weaker at £10. to £10. 1s. 3d.

Chief prices current are:—Soda crystals, £2. 15s. nett Tyne; alum in lump, £5. 10s., nett Glasgow; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; bleaching powder, £7. 5s. to £7. 7s. 6d. nett Tyne; saltcake, 35s.; borax, English refined, £30., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8d., less 5% Liverpool; nitrate of soda, 9s.; sulphate of ammonia, £10. to £10. 1s. 3d. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £15. less 5% Liverpool; paraffin scale (hard), 2d., and soft 2d. per lb.; paraffin wax, 120°, semi-refined, 2½d.; paraffin spirit (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower); ditto (lubricating), 865°, £3. to £3. 5s., 885°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 17,928 bags.

## THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report dated Liverpool, 2nd November, 1892, state:—

The Chili Charters for the past fortnight not being to hand are estimated as 1,000 tons, which with 350 tons for the previous fortnight, makes 1,350 tons for the month, thus making the total Charters since 1st January 18,150 tons, against 16,750 for the same time last year. Exchange, 20d.

During the past fortnight about 8,000 tons of G.m.b.'s and G.o.b.'s have been sold, opening at £45. 17s. 6d. cash and £46. 6s. 3d. three months, values receded to £45. 8s. 9d. and £45. 18s. 9d. respectively, closing steady to-day at £45. 10s. cash and £46. three months.

In our last report we did not mention the closing of the Anaconda Mine, but are now in position to confirm that the mine will be shut down upon on the 10th of November, for at least three months.

We understand the greater part of the English copper on warrants, in the shape of Cake, etc., and which has been in warehouse at Swansea for a long time past, as well as some which was warehoused here, and also 600 tons of Mason's Precipitate out of old syndicate stock here (and of which a balance of 400 tons remain, and 580 tons in Swansea) has been made over to smelters, under certain conditions.

The Rio Tinto Company have contracted with the United Alkali Company for their entire consumption of Pyrites in the Mersey District *1894-96*, at 4d. per unit for Sulphur. The price now current being 3¾d. The Interim dividend at the rate of 7s. per share mentioned in our last is payable on the 17th of the month.

The total stocks in Liverpool, Swansea, London, and Havre shew a decrease of 732 tons for the fortnight, which with a decrease of 972 tons for the previous fortnight, makes a total decrease of 1,704 tons for the month. The stocks include about 2,600 tons of copper sold, but not yet delivered to smelters, irrespective of the English G.m.b.'s in Liverpool and Swansea, which, as mentioned above, have been disposed of to smelters.

The visible supply shews a decrease of 1,211 tons for the fortnight, which with a decrease of 1,854 tons for the previous fortnight, makes a total decrease of 3,065 tons for the month. The total deliveries for the fortnight are 4,972 tons, which with 4,175 tons for the previous fortnight, makes a total of 9,147 tons for the month. The present stock of English G.m.b.'s in warehouse, Liverpool and Swansea, is 2,076 tons, against 2,220 tons on the 16th ult. The delivery in Liverpool and Swansea was 144 tons, making a decrease of this quantity for the fortnight. Refined and manufactured sorts quiet, but firm. Quotations being:—Tough Cake £49. to £49. 10s., best select £50. to £50. 10s., Indian sheets £53. 10s. to £53. 15s., strong sheets £58. and yellow metal sheets 5d. to 5 1/16d. per lb.

The sales of furnace material comprise—at Liverpool: 71 tons Chili Copper Ore, at 8s. 7½d.; 10 tons Spanish Ore, to arrive, at 8s. 3d.; 10 tons Portuguese Ore, at 8s. 4½d.; 600 tons Mason's Precipitate, at 9s. 1½d., 5 tons Portuguese Precipitate (high produce), at 9s. 4½d. per unit; 260 tons Argentiferous lead, and 300 tons Argentiferous Montana Matte, on private terms. At Swansea; 200 tons Norwegian Ore, to arrive, at 9s.; and 200 tons Quebrada Regulus, spot (25 per cent.), at 8s. 9d. per unit.

## New Companies.

**Anthracite Association for the Promotion of the Use of Anthracite Smokeless Coal, Ltd.**—Capital £10,000. in £1. shares. The object of this company is sufficiently indicated by its title. The subscribers to the memorandum of association are: R. W. Clews, Rotherham, colliery proprietor; H. Gibson, 4, St. Marys Axe, solicitor; J. H. Pubsten, 2, Bank Buildings, merchant; H. M. Miers, Swansea, J P.; C. Lane, Pembroke, retired officer; R. Capper, Westminster, S.W.; L. N. Mann, 23, Lime-street, E.C., contractor.

**Bristol Metal Company, Ltd.**—Capital £2,000. in £1. shares. The company has been formed with a view to trading as galvanisers, tinners, metallurgists, smelters, etc.

**Tar Products Sales Committee, Ltd.**—Capital £75,000. in £1. shares. This company has been formed to deal in tar and tar products, etc., and to sell, store, import, manipulate and refine the same. The subscribers to the memorandum of association are: S. B. Boulton, 64, Cannon-street; G. Abbott, 165, Fenchurch-street, E.C.; J. Forbes, 165, Fenchurch-street, E.C.; F. Nice, 11, Chelsea Embankment, S.W., solicitor; T. S. Boulton, Seven Sisters-road, N., accountant; D. Murison, 10, Avenue-road, S.E., commercial clerk; F. H. Capron, 47, Cornhill, E.C., solicitor.

**Coal Brick Syndicate, Ltd.**—Capital £150,000. in shares of £1. The object of this company is to secure patents, etc., in connection with the utilisation of coal dust and to manufacture briquettes, etc. The subscribers to the memorandum of association are: E. J. Morris, 7, Oakley-road, N., stationer's assistant; W. T. Moore, Forest Gate, E., gentleman; A. Crispin, Stepney, E., gentleman; J. P. Johnston, Burdett-road, E., clerk; G. F. Smith, 59, Eleanor-road, N.E., clerk; G. E. Wilkinson, Stamford Hill, N., stationer; J. Londen, Forest Gate, E., traveller.

## The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

### APPLICATIONS FOR LETTERS PATENT.

**Brick and Tile Making Machines.** W. F. Butler. 19,042. Oct. 24th.
**Wool Scouring and Fat Saving Apparatus.** J. Rhodes. 19,071. Oct. 24th.
**Producing Oxygen and Nitrogen from the Atmosphere.** L. Chapman. 19,078. Oct. 24th.
**Improvements in Filters.** W. M. Deutsch. 19,109. Oct. 25th.
**Coating Tin and Terne Plates.** J. L. Williams and P. S. Phillips. 19,114. Oct. 25th.
**Pressure Gauges.** H. Kopping. 19,115. Oct. 25th.

**Machinery for Dipping and Dusting Tin and Terne Plates.** J. H. Williams and P. S. Phillips. 19,119. Oct. 25th.
**Obtaining Cyanogen Compounds.** J. S. MacArthur, R. W. Forrest, and W. Forrest. 19,143. Oct. 25th.
**Improvements in Evaporating Apparatus.** H. H. Lake. 19,147. Oct. 25th.
**Drying Apparatus.** H. W. Rappleye. 19,149. Oct. 25th.
**Obtaining Chlorine and Soda by Electrolysis.** H. Blackman. 19,170. Oct. 25th.
**Improved means for the Production of Chloride of Lime.** J. M. Milnes and A. Milnes. 19,180. Oct. 25th.
**Solidifying Mineral, Vegetable and Animal Oils.** J. W. Chenhall and W. S. Chenhall. 19,191. Oct. 25th.
**Purifying Sewage Waters and Waste Effluents.** R. Stanley. 19,198. Oct. 26th.
**Improvements in the Concentration of Sulphuric Acids and other Liquids.** I. Levinstein. 19,213. Oct. 26th.
**New Colouring Matters.** H. E. Newton. 19,246. Oct. 26th.
**Improvements in Treating Sewage.** W. D. Scott-Moncrieff. 19,247. Oct. 26th.
**Flavouring Alcoholic Liquids.** A. Brin. 19,259. Oct. 26th.
**Distilling and Rectifying Alcoholic Liquids.** A. Brin. 19,260. Oct. 26th.
**Distilling and Flavouring Alcoholic Liquids.** A. Brin. 19,261. Oct. 26th.
**Consuming Smoke from Open Grates.** T. Davies. 19,344. Oct. 27th.
**Coating Tin and Terne Plates.** W. P. Thomas and R. Davies. 19,371. Oct. 28th.
**Artificially Coloured Stones.** P. A. Moreau. 19,395. Oct. 28th.
**Production of Blue Ultramarine from Green Ultramarine.** R. W. E MacIvor and A. Cruickshank. 19,411. Oct. 28th.
**Air Filter.** E. F. Daniel and G. H. Morris. 19,443. Oct. 29th.
**Smoke Consuming Furnaces.** W. Woodward. 19,457. Oct. 29th.
**Carburetting Gas and Air for Illuminating Purposes.** A. W. Wells. 19,483. Oct. 29th.

# Gazette Notices.

**BANKRUPTCY ACTS, 1883 and 1890.**

**Receiving Orders.**

FORSHER, NATHAN ROBERT COWLEY, trading at Cowley Peachey, Uxbridge. Middlesex, cement manufacturer.
ORANGE, GEORGE, Flint, Compton Giffard, Devonshire, late mineral merchant.

**Adjudications.**

GRIFFITHS, THOMAS, Bowyer Terrace, Clapham, and Dashwood House, New Broad St. E.C, paint manufacturer and managing director of Griffiths Pyrodene Fireproof Co. Ltd., at Dashwood House aforesaid.
ORANGE, GEORGE, Flint, Compton Giffard, Devonshire, late mineral merchant.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending October 29th.*

**Acetic Acid—**
Holland, 125 pkgs. A. & M. Zimmermann
France, 1 White Bros.

**Alkali—**
France, 200 c. Arnati & Harrison
Germany, 100 Craven & Co.

**Alumina Sulphate—**
Germany, 96 pkgs. Tough & Henderson

**Antimony—**
France, 1 t. B. & F. Wf. Co., Ltd.

**Barium Chloride—**
Germany, 22 pkgs. Petri Bros.

**Barytes—**
Germany, 23 cks. W. Harrison & Co.
Holland, 46 Magee, Taylor, & Co.
Germany, 20 G. Steinhoff
Belgium, 20 J. L. Lyon & Co.
" 20 Leach & Co.
Holland, 23 W. Pope & Co.

**Caoutchouc—**
U. States, 28 c. Fruhling & Goschen
Zanzibar, 42 cs. L. & I. D. Jt. Co.
America, 10 R. G. Hall & Co.
Savanilla, 290 Stiebel Bros.

**Castor Oil—**
Italy, 10 cs. L. & I. D. Jt. Co.
" 10 Fellows, Morton, & Co., Ltd.
France, 10 pkgs. B. & N. Whvs. Co., Ltd.
Belgium, 42 brls. Fuerst Bros.
Italy, 5 a. R. G. Clements & Son

**Caustic Potash—**
France, 21 pkgs. Spies Bros. & Co.

**Caustic Soda—**
Germany, 125 c. A. Truman & Co.

**Chemicals** *(otherwise undescribed)*
Holland, £28 R. Morrison & Co.
" 180 T. H. Lee
Germany, 231 "
" 517 A. & M. Zimmermann
" 11 Becker & Ulrich
" 18 L. & I. D. Jt. Co.
Holland, 31 Phillipps & Graves

**Cream of Tartar—**
Spain, 8 pkgs. B. & F. Wf. Co., Ltd.
France, 15 "
" 10 W. C. Bacon & Co.
" 5 M. Ashby, Ld.
Holland, 10 Middleton & Co.
Spain, 11 W. C. Bacon & Co.
" 9 F. Punti
France, 18 Ross & Deering
" 2 E. W. Carling & Co.

**Dextrine—**
Germany, 16 bgs. Bot. & Nch's. Wf. Co., Ltd.

**Dyestuffs—**
**Annatto**
Ceylon, 13 pkgs. Anderson, Weber, & Smith
" 128 Hoare, Wilson, & Co.
**Argols**
France, 105 pkgs. N. S. S. Co., Ld.
**Cutch**
E. Indies, 7 pkgs. A. J. Humphrey
**Extracts**
France, 60 pkgs. T. H. Lee
" 30 drs. Carey & Sons
U. States, 50 W. Burton & Sons
" 7 W. W. Young
France, 200 L. J. Levinstein & Sons
**Gambier**
E. Indies, 401 pkgs. P. & S. Evans & Co.
" 178 S. Barrow & Bros., Ld.
Ceylon, 131 pkgs. H. Lambert
**Indigo**
E. Indies, 31 chts. L. & I. D. Jt. Co.
" 10 T. H. Allan & Co.
" 27 R. Von Glehn & Sons
Holland, 1 Ripley, Roberts, & Co.
E. Indies, 5 Parsons & Keith
" 18 Arbuthnot, Latham, & Co.
" 17 W. Brandts, Son, & Co.
Germany, 7 Phillipps & Graves
**Myrabolams**
E. Indies, 415 pkgs. L. & I. D. Jt. Co.
**Orchella**
Portugal, 164 pkgs. Prop. Bull Wf.
" 69 J. Silva & Co.
**Sumac**
Italy, 100 pkgs. Vokins & Co., Ld.
" 425 G. S. N. Co.
" 1,500 A. Hagan
" 100 W. Barter & Co.
" 570 Italo-Brit. S. N. Co.
" 50 J. Greig
**Tanners' Bark**
Melbourne, 5 t. H. Deering
U. States, 30 G. B. Mackereth
Belgium, 42 Leach & Co.
Cooktown, 1 McIlwraith & Co.

**Farina—**
Holland, 100 pkgs. Prop. Chambln.'s Wf.
France, 20 F. Dubois
Germany, 100 J. Anderson & Co.
" 50 R. G. Hall & Co.
" 10 Prop. Chambln.'s Wf.
Holland, 200 Ohlenschlager Bros.

**Glucose—**
France, 300 pkgs. 300 c. J. Barber & Co.
U. States, 200 1,120 c. F. J. Warren
Holland, 5 40 J. Knill & Co.
Germany, 600 600 W. Pope & Co.
U. States, 500 500 Fellows, Morton, & Co.

**Guano—**
Peru, 1,010 t. Anglo-Contl. G. Wks.
U. States, 1,435 "

**Manganese—**
Japan, 6 t. Norris & Joyner
" 97 J. Greig

**Manure—**
Germany, 57 t. Humphrey & Co.

**Methyl Alcohol—**
Belgium, 6 cks. W. G. Blagden

**Mica—**
Germany, £6 L. & I. D. Jt. Co.
E. Indies, 24 cs. W. M. Smith & Sons

**Ochre—**
Germany, 7 cs. Phillipps & Graves
Holland, 41 cks. Arnati & Harrison
Sydney, 40 bgs. Pitt & Scott

**Painters' Colours—**
Belgium, 40 brls. Magee, Taylor, & Co.
Holland, 1 ck. J. Owen
" 2 cs. Little & Johnston
France, 10 pkgs. Flageollet & Co.
Belgium, 4 9 cks. T. Palmer
Germany, 1 Pecker & Ulrich
Holland, 3 R. Baelz & Co.
Germany, 3 L. & I. D. Jt. Co,
U. States, 1 Chippendale, Ltd.
France, 51 W. Harrison & Co.
Germany, 1 13 T. H. Lee
" 7 Phillipps & Graves
" 10 O'Hara & Hoar
" 2 W. Fenton

**Paraffin Wax**
U. States, 2,294 brls. J. H. Usmar & Co.
" 1,350 H. Hill & Sons
" 100 Mordaunt Bros.
" 174 C. Ogleby & Co.
" 102 Prod. Broker's Co.

**Phosphate Rock—**
France, 500 t. G. M. Bauer
" 330 Anglo-Contl. G. Wks.
" 22 Odams Chemical Manure Co.

**Pitch—**
Holland, 50 brls. Ross & Deering

**Plumbago—**
Germany, 136 cks. Le Sueur & Co.
Ceylon, 297 pkgs. Prop. Sun Wf.
Germany, 43 181 cs. Prop. Scott's Wf.
" 25 R. Warner & Co.
" 100 J. Thredder, Sons, & Co.
Ceylon, 68 "
" 104 brls. L. & I. D. Jt. Co.
Germany, 25 cs. T. H. Lee
Ceylon, 272 R. G. Hall & Co.

**Potash—**
Montreal, 120 c. Charles & Fox

**Potassium Bicarbonate—**
Holland, 30 pkgs. A. & M. Zimmermann

**Potassium Carbonate—**
France, 9 pkgs. Beresford & Co.
" 300 c. Charles & Fox
Germany, 12 Spies Bros. & Co.

**Potassium Cyanide—**
Holland, 20 cs. F. Boehm

**Potassium Permanganate—**
Holland, 55 pkgs. F. Boehm
" 35 T. Palmer
Germany, 16 Spies Bros. & Co.

**Pyrites—**
Spain, 950 t. T. S. Whitehead & Co.
" 2,092 C. Tennant, Sons, & Co.

**Rosin—**
U. States, 50 brls. G. Nutter & Co.
" 300 Chieseman & Co.
" 500 Moore & Hole
France, 26 G. Meyer & Co.

**Rosin Oil—**
France, 250 brls. C. Price & Co.

**Saltpetre—**
E. Indies, 990 bgs. Lucas & Spencer's Wf.
Germany, 70 cks. T. Merry & Son
" 125 P. Hecker & Co.
Chili, 11,816 Anglo Contl. G. Wks.

**Sodium Acetate—**
France, 9 pkgs. S. F. Waters & Co.

**Sodium Nitrite—**
Germany, 5 pkgs. Petri Bros.

**Stearine—**
France, 20 bgs. T. Trapp & Sons
Belgium, 6 bgs. H. Hill & Sons

**Sulphur—**
Italy, 150 t. A. Hughes
" 200 Brandram Bros. & Co.
" 52 Italo-Brit. S. N. Co.
" 22 Blackwood, Bryson, & Co.
" 50 C. F. Webster & Co.

**Tallow—**
Sydney, 105 cks. Leach & Co.
" 36 Goad, Rigg, & Co.
Belgium, 1 Arnati & Harrison
Australia, 13 Dyster, Nalder, & Co.
U. States, 250 pails. Bigland, Sons, & Co.
Australia, 31 D. J. Keymer & Co.
" 53 Brown & Elmslie
Falklands, 130 Anning & Cobb
Queensland, 59 "
" 180 A. Gibbs & Sons
" 120 Goldsbrough, Mort, & Co.
" 32 Leach & Co.
" 279 Aust. Meat Co.
" 64 S. J. Clark
" 62 Brown & Elmslie
" 160 Goad, Rigg, & Co.
" 66 Phillipps & Graves
" 73 Culverwell, Brooks, & Co.
N. Zealand, 4 "
France, 12 H. Hill & Sons

**Tartars—**
Italy, 23 pkgs. Howards & Sons

**Tartaric Acid—**
Holland, 10 pkgs. Middleton & Co.
" 15 B. & F. Wf. Co., Ltd.

**Turpene—**
Germany, 3 pkgs. F. Stahlschmidt & Co.

**Turpentine—**
N. Russia, 51 brls. C. B. Leighton
Germany, 53 F. & S. Chiesman

**Ultramarine—**
Belgium, 4 brls Leach & Co.
" 11 pkgs. W. Harrison & Co.
Holland, 20 cks Hernu, Peron, & Co.
Belgium, 24 Arnati & Harrison
Holland, 9 Haeffner, Hilpert, & Co.

**Varnish—**
Germany, 48 pkgs. Suter, Hartmann, & Co.

**Verdigris—**
France, 3 pkgs. H. Lorenz

**White Lead—**
Germany, 19 cks. N. J. Fenner & Co.
France, 10 J. Watt & Son
Holland, 50 F. W. Farmiloe
" 18 Burrell & Co
Belgium, 28 Leach & Co.
Holland, 40 A. & M. Zimmermann
" 12 S. H. Willoughby
Germany, 12 Petri Bros.
Holland, 25 Colthurst & Harding
Germany, 12 H. Lambert
" 22 W. Fenton

**Zinc Oxide—**
U. States, 100 brls. M. Ashby, Ld
Germany, 50 "
Holland, 155 "

## LIVERPOOL.

*Week ending October 27th.*

**Alumina Sulphate—**
Valparaiso, 1 brl.

**Antimony—**
Valparaiso, 233 sks. Brownells & Co.

**Barytes—**
Antwerp, 400 bgs.

**Borate of Lime—**
Valparaiso, 708 sks.
Antofagasta, 700 bgs.

**Caoutchouc—**
Havre, 10 brls. Cunard S. S. Co., Ltd.

**Carbolic Acid—**
Hamburg, 12 btls.

**Colours—**
Ghent, 2 brls.
In transit, 50 cs.
Antwerp, 27 J. T. Fletcher & Co.
Rotterdam, 10 1 3 cks.

**Copper Chloride—**
Rotterdam, 2 cks.

**Cream of Tartar—**
Barcelona, 5 hds. Sachse & Klemm
Tarragona, 7 pps.
Bordeaux, 1 ck.
Rotterdam, 40 kgs.

**Dyestuffs—**
**Annatto**
Bordeaux, 10 cks.
**Cochineal**
Las Palmas, 12 bgs. Kolp & Co.
Gr. Canary, 17 sks. Sperling & Williams
" 50 bgs. Roberts & Evans
Teneriffe, 20 F. Huth & Co.
" 41 Kuhor, Henderson, & Co.
Las Palmas, 8 Sperling, Williams, & Co.
**Divi Divi**
Hamburg, 204 kgs.
**Extracts**
New York, 3 crts. A. J. White, Ltd.
Fiume, 508 brls.
Bordeaux, 270 cks.
Philadelphia, 250 bxs.
Hamburg, 50 cs.
**Gambier**
Akassa, 1,121 bgs. Royal Niger Co.
**Indigo**
Akassa, 7 bxs. Royal Niger Co.
**Madder**
Smyrna, 13 bls.
**Saffron**
Valencia, 1 cs.
**Sumac**
Barcelona, 100 bgs. A. Ruffer & Son
" 100
Trieste, 100 F. Steiner & Co.
**Valonia**
Smyrna, 11 bgs. Papayanni & Jeremias
" 50 t. Essayan, Shakum
" 1,343 129

**Farina—**
Hamburg, 15 sks.
Fiume, 60 bgs. Koralch & Muller
" 100 A. Baumann & Co.
" 50 C. J. Vander & Bros.
" 100
Antwerp, 110 cs. J. T. Fletcher & Co.

**Glucose—**
New York, 155 brls.

**Horn Piths—**
M. Video, 41 t. Haycroft & Pethick

**Iodine—**
Valparaiso, 34 brls. A. Gibbs & Son
" 134 W. & J. Lockett
" 76 Vorwerk, Gebr, & Co.
" 13
Iquique, 27 A. Gibbs & Sons

**Lime—**
New York, 1,691 bgs.
Hamburg, 5 cks.

**Limestone—**
Rouen, 1 crt. R. J. Francis & Co.

**Manganese—**
Coquimbo, 2,320 t.
M. Video, 28 cks. H. Brown
Poti, 3,150 Macqueen Bros.
Valparaiso, 598

**Mineral White—**
Trieste, 300 brls. V. Pozzo
" 200 bgs. V. Pazze

**Naphtha—**
New York, 5,760 brls.

**Ochre—**
Teneriffe, 1 bg.
Rouen, 21 cks. R. J. Francis & Co.

**Paint—**
Boston, 20 cs. M. Nicol & Co.
" 10

**Phosphate—**
Ghent, 1,000 bgs. J. T. Fletcher & Co.
" 200
Charleston, 175 t.

**Phosphate Rock—**
Coosaw, 1,850 t. T. Harling & Co.

**Pitch—**
Bordeaux, 29 cks.

**Potash Salts—**
Hamburg, 963 bgs.

**Potassium Carbonate—**
Hamburg, 54 cks.

**Potassium Prussiate—**
Rotterdam, 1 ck.

**Pyrites—**
Huelva, 1,280 t. Matheson & Co.

**Rosin—**
New York, 12 brls.

**Saltpetre—**
Calcutta, 1,270 bgs.

**Soap—**
Boston, 2 cs.
Alexandretta, 1 bg. S. Durgan & Co.
Bari, 160 cs.
Smyrna, 1 bx.

**Soapstone—**
Genoa, 1,300 bgs. W. Harrison & Co.

**Soda—**
Rotterdam, 20 brls. 4 cks.

**Stearine—**
Bordeaux, 15 cs.
Boston, 20 brls.
Antwerp, 39 bgs.

**Talc—**
Fiume, 165 bgs. J. Elbogen

**Tallow—**
Baltimore, 23 hhds. 500 tcs.
Philadelphia, 43 100
Boston, 250 tcs. J. Mackee & Co.
" 45 hhds.

**Tartar—**
Bordeaux, 10 cks.

**Tartaric Acid—**
Rotterdam, 17 cks. 2 brls.

**Ultramarine—**
Hamburg, 30 cs.
In transit, 25 60 cks.

**Varnish—**
Boston, 1 ck.

**Verdigris—**
Bordeaux, 3 cks.

**Waste Salt—**
Hamburg, 610 bgs.

**White Lead—**
Rotterdam, 40 cks.

**Zinc Ashes—**
Bordeaux, 141 pkgs.
Boston, 75 brls.
Rouen, 392 bgs R. J. Francis & Co.

**Zinc Oxide—**
Antwerp, 105 brls.
Rotterdam, 100 cks.

**Zinc White—**
Antwerp, 25 cks.

## HULL.

*Week ending October 29th.*

**Acetic Acid—**
Hamburg, 5 cks. Furley & Co.
Rotterdam, 5 cbys. G. Lawson & Sons

**Alkali—**
Flushing, 8 cks. Zeeland S. S. Co.

**Barytes—**
Antwerp, 102 cks. 100 bgs. Bailey & Leetham
Bremen, 42 H. F. Pudsey
" 46 Tudor & Sons
Rotterdam, 22 J. W. Davis & Son

**Caoutchouc—**
Hamburg, 12 bls. C. M. Lofthouse & Co.

**Chemicals** (*otherwise undescribed*)
Danzig, 19 cks.
Bremen, 2 cs. 4 Veltmann & Co.
Antwerp, 30 Wilson, Sons & Co., Ltd.
Hamburg, 9 " "

**Colours—**
Rotterdam, 4 cs. 11 pks. W. & C. L. Ringrose
" 19 cks. 1 cs. 7 pks. Hutchinson & Son
" 17 7 pks. G. Lawson & Sons
" 1 ck. Todd & Son
Ghent, 6 cks.
Flushing, 33 cs. 3 cks. 280 pks Zeeland S. S. Co.
Stettin, 5 cks. Wilson, Sons & Co., Ltd.
Antwerp, 4 57 brls.
Bremen, 3 1 cs. Veltmann & Co.
Rotterdam, 46 pks. J. Pyefinch & Co.
Hamburg, 8 cs. Wilson, Sons & Co., Ltd.
Antwerp, 107 cks. " "
Hamburg, 1 brl.

**Creosote—**
Hamburg, 3 kgs. Wilson, Sons & Co., Ltd.

**Dextrine—**
Stettin, 5 bgs. Wilson, Sons & Co., Ltd.

**Dyestuffs—**
**Alizarine**
Rotterdam, 25 pks. W. & C. L. Ringrose
" 17 cks. Hutchinson & Son
" 73 pks. G. Lawson & Sons
**Madder**
Rotterdam, 1 ck. Hutchinson & Son
**Sumac**
Palermo, 870 bgs. Wilson, Sons & Co., Ltd.
" 1,050

**Farina—**
Hamburg, 50 bgs. Bailey & Leetham
" 700 Wilson, Sons & Co., Ltd.
Rotterdam, 250 G. Lawson & Sons
Ghent, 80 bxs. Wilson, Sons & Co., Ltd.
Stettin, 1,280 bgs. " "
Hamburg, 10 G. Lawson & Sons
" 100 C. M. Lofthouse & Co.
Harlingen, 450 W. & C. L. Ringrose

**Glucose—**
Stettin, 15 cks. Wilson, Sons & Co., Ltd.
" 55

**Manure—**
Aalesund, 27 bgs. Brekke & Howlid

**Nitrate—**
Hamburg, 50 kgs. Wilson, Sons & Co., Ltd.

**Ochre—**
Rouen, 21 cks. Rawson & Robinson

**Paint—**
Stavanger, 8 cs. Wilson, Sons & Co., Ltd.

**Phosphate—**
St. Valery, 122 t. W. Knight

**Phosphate Rock—**
Coosaw, 1,100 t. Hammond, Emes & Co.

**Pitch—**
Ghent, 60 brls. Wilson, Sons & Co., Ltd.

**Plumbago—**
Antwerp, 5 bgs. Bailey & Leetham

**Potash—**
Rotterdam, 20 cks. G. Lawson & Son
Dunkirk, 31 pks. Wilson, Sons & Co., Ltd.

**Pyrites—**
Huelva, 1,484 t.

**Rosin—**
Bordeaux, 8 cks. Rawson & Robinson

**Soap—**
Copenhagen, 2 cs. Wilson, Sons & Co., Ltd.
Hamburg, 25 kgs. " "
Bari, 115 cs. " "
" 2

**Soda—**
Rotterdam, 130 brls. Hutchinson & Son

**Stearine—**
Antwerp, 48 bgs. Wilson, Sons & Co., Ltd.

**Sulphur—**
Catania, 2,500 pks. Wilson, Sons & Co., Ltd.
" 100 t. 467 pks.
Messina, 398 bgs.

**Tallow—**
Amsterdam, 9 kgs. G. Lawson & Sons

**Tar—**
Uleaborg, 1,720 brls.

**Tartar—**
Bordeaux, 3 cks. Rawson & Robinson
Bari, 10 Wilson, Sons & Co., Ltd.

**Tartaric Acid—**
Rotterdam, 2 cks. Hutchinson & Son
" 11 W. & C. L. Ringrose

**Tin Oxide—**
Rotterdam, 3 cks. G. Lawson & Sons

**Turpentine—**
Bordeaux, 9 cks. 2 brls. Rawson & Robinson
Libau, 50 cks.

**Ultramarine—**
Rotterdam, 2 cks. W. & C. L. Ringrose

**Vermilion—**
Bremen, 14 cs. J. Pyefinch & Co.

**White Lead—**
Antwerp, 24 cks. Bailey & Leetham

## GLASGOW.

*Week ending November 3rd.*

**Alkali—**
Antwerp, 5 cks.

**Barytes—**
Rotterdam, 70 cks.

**Barytes Sulphate—**
Antwerp, 200 bgs. 41 cks.

**Bleaching Powder—**
New York, 250 bxs.

**Castor Oil—**
Calcutta, 100 css.

**Colours—**
Antwerp, 1 ck.
Rotterdam, 2 cks. 1 brl. J. Rankine & Son
Amsterdam, 2 1 cs.

**Cream of Tartar—**
Rotterdam, 10 cks. J. Rankine & Son

**Dextrine—**
Stettin, 100 bgs.

**Dyestuffs—**
**Alizarine**
Rotterdam, 34 cks.
**Extracts**
Antwerp, 14 cks. 2 cs.
Fiume, 712 brls.
New York, 10
**Madder**
Rotterdam, 2 cks. J. Rankine & Son
**Sumac**
Palermo, 1,600 bgs.
Fiume, 50 bls.

**Farina—**
Antwerp, 3 bgs.
Hamburg, 20

**Glucose—**
New York, 100 brls.

**Iron Oxide—**
Trieste, 52 brls. Fergus & Reid

**Kaolin—**
Antwerp, 70 bgs.

**Mica—**
Calcutta, 255 css.

**Paint—**
New York, 1 brl.

**Painters' Colours—**
Antwerp, 5 cks.

**Paraffin Wax—**
New York, 80 brls.

**Phosphate of Lime & Phosphate Rock—**
Antwerp, 200 bgs.
**Pyrites—**
Huelva, 1,734 t. Tharsis Co., Ltd.
**Soap—**
Bari, 315 cs.
**Sulphur—**
Catania, 67 brls. 25 cks. 1,000 bgs. 400t.
Finme, 520 bgs.
Seville, 1,240 t. Seville Sulphur and Copper Co.
**Tartar—**
Bordeaux, 34 cks.
**Tartar Emetic—**
Hamburg, 7 cks.
**Varnish—**
New York, 2 cs.
**Waste Salt—**
Hamburg, 610 bgs.
**White Lead—**
Rotterdam, 63 cks.
**Zinc Oxide—**
Antwerp, 25 cks.

## TYNE.

*Week ending October 29th.*

**Acetic Acid—**
Rotterdam, 51 botls. Tyne S. S. Co.
**Asbestos—**
Rotterdam, 1 cs. Tyne S. S. Co.
**Barytes—**
Rotterdam, 92 cks. Tyne S. S. Co.
Antwerp, 66 ,, ,,
**Colours—**
Rotterdam, 21 cks. Tyne S. S. Co.
**Glucose—**
Rotterdam, 40 bgs. Tyne S. S. Co.
**Limestone—**
Antwerp, 2 fms Tyne S. S. Co.
**Verdigris—**
Rotterdam, 2 cks. Tyne S. S. Co.
**Zinc Oxide—**
Antwerp, 20 brls. Tyne S. S. Co.

## GOOLE.

*Week ending October 19th.*

**Alkali—**
Ghent, 5 cbys.
**Caoutchouc—**
Boulogne, 4 cs.
**Dyestuffs—**
**Alizarine**
Rotterdam 62 brls. 27 pkgs.
**Madder**
Rotterdam, 2 cks.
**Dyestuffs** (*otherwise undescribed*)
Boulogne, 3 cs. 1 ck. 19 pkgs.
**Farina—**
Hamburg, 100 bgs.
Delfszyl 1,800
**Glucose—**
Hamburg, 28 cks.
Calais, 100 bgs.
**Potash—**
Dunkirk, 10 cks. 79 dms.
Calais, 41
**Saltpetre—**
Rotterdam, 100 bgs.
Hamburg, 25 kgs. 8 cks.
**Waste Salt—**
Hamburg, 245 t. 508 bgs. 199 cks.
**Zinc Oxide—**
Antwerp, 10 brls.

## GRIMSBY.

*Week ending October 22nd.*

**Caoutchouc—**
Hamburg, 8 cs.
**Chemicals** (*otherwise undescribed*)
Hamburg, 21 cks. 2 pkgs.
**Dyestuffs** (*otherwise unaescribed*)
Dieppe, 45 cks.
**Farina—**
Hamburg, 220 bgs.
**Size—**
Antwerp, 10 cks.
**Zinc Ashes—**
Antwerp, 9 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending November 2nd.*

**Alkali—**
Adelaide, 13 c. £15
**Alum—**
B. Ayres, 1 t. 12 c. £11
**Alum Cake—**
Calcutta, 35 t. 6 c. £124
**Ammonium Carbonate—**
Christchurch, 10 c. £16
**Ammonium Chloride—**
Bourgas, 1 t. 11 c. £47
**Arsenic—**
Napier, 3 t. £40
**Barium Sulphate—**
Palermo, 5 cks. £20
Naples, 10 16
**Bisulphide of Carbon—**
Melbourne, 40 cs. £44
Sydney, 20 pkgs. 22
N. Orleans, 52 drs. 40
**Bisulphite of Lime—**
Calcutta, 3 t. 14 c. £74
**Borax—**
Melbourne, 5 t. 2 c. £260
**Carbolic Acid—**
Kingston, 3 cks. £15
**Caustic Potash—**
Sydney, 1 t. 18 c. £42
Melbourne, 1 12 38
**Caustic Soda—**
Algoa Bay, 3 t. 19 c. £132
Dunedin, 2 18 32
Natal, 3 3 44
Cape Town, 1 16 49
**Chemicals** (*otherwise undescribed*)
Auckland, 5 cs. £47
Natal, 20 15
Cape Town, 3 9 cks. 48
Algoa Bay, 31 12 153
**Citric Acid—**
Fremantle, 1 c. £8
Melbourne, 1 t. 10 240
St. Petersburg, 15 4 kgs. 6 cks. 397
Hamburg, 1 10 240
Sevastopol, 2 23
Rotterdam, 2 70
B. Ayres, 4 33
Brussels, 10 84
Amsterdam, 1 9
Havana, 4 31
**Coal Products—**
**Aniline**
Melbourne, 1 cs. £31
**Aniline Oil**
Rotterdam, 12 drs. £460
Ghent, 1 run. 15
**Aniline Salts**
New York, 18 pkgs. £140
**Anthracene**
Cologne, 54 cks. 457
Dusseldorf, 306 1,555
Rotterdam, 110 507
**Benzol**
Rotterdam, 26 pkgs. £223
Melbourne, 13 cs 11
**Naphtha**
Sydney, 13 cs. £10
Treport, 5 pns. 30
Calais, 5 runs. 30
**Pitch**
St Nazaire, 1,077 t. £1,600
Dunkirk, 460 690
Caen, 290 450
St. Malmo, 478 825
Venice. 1,480 2,072
Christiania, 82 pkgs. 27
New York, 4,557 bgs. 843
Boston, 500 cks. 260
**Tar**
New York, 300 cks. £193
Boston, 250 138
Stettin, 150 brls. 66
Natal, 450 drs. 45
**Copper Sulphate—**
Canterbury, 2 t. £39
Hobart, 10 159
**Cream of Tartar—**
Melbourne, 3 t. 5 c. £284
Adelaide, 1 84
Wellington, 10 42
B. Ayres, 5 21
**Disinfectants—**
Hamburg, 10 cks. £50
Kingston, 4 pkgs. 10
Hong Kong, 120 33
Colombo, 10 2 cs 20
Calcutta, 15 drs. 13
Sydney, 4 c. 29 28 166
**Flowers of Sulphur—**
Algoa Bay, 1 t. 2 c. £10
Pt. Elizabeth, 3 10 42
**Lead Acetate—**
Sydney, 10 c. £13
**Liquid Ammonia—**
Hamburg, 24 drs. £40
**Manure—**
Hamburg, 50 t. £500
Demerara, 50 488
Ghent, 10 100
**Nitric Acid—**
Jersey, 24 cbys. £53
**Phosphorus—**
Melbourne, 10 cs. £110
**Potash Crystals—**
Melbourne, 10 kgs. 1 cs. £47
**Potassium Chlorate—**
Boston, 4 t. 5 c. £239
Odessa, 1 15 116
**Potassium Cyanide—**
Pt. Elizabeth, 5 cs. £26
Madras, 3 14
**Saltpetre—**
Dunedin, 10 c. £12
Sydney, 5 t. 10 123
Oporto, 11 15 238
**Sheep Dip—**
Algoa Bay, 350 drs. £115
Dunedin, 30 106 pkgs. 123
Calcutta, 50 29
**Soda Ash—**
Sydney, 25 t. £193
**Soda Crystals—**
Manilla, 13 c. £4
Bunbury, 18 4
Natal, 1 t. 13 6
**Sodium Acetate—**
Sydney, 1 t. 19 c. £59
**Sodium Bicarbonate—**
Algoa Bay, 10 c. £8
**Sodium Hyposulphite—**
Calcutta, 12 t. £88
**Sulphur—**
B. Ayres, 4 t. 4 c. £48
Calcutta, 5 43
**Sulphuric Acid—**
Algoa Bay, 20 drs. £32
**Superphosphate of Lime—**
Oporto, 41 t. £160
**Tartaric Acid—**
Adelaide, 1 t. £99
Melbourne, 3 5 c. 351
Sydney, 5 10 kgs. 80
B. Ayres, 20 cks. 165
Fremantle, 2 10

## LIVERPOOL.

*Week ending November 2nd.*

**Alkali Waste—**
Antwerp, 2 t. 8 c. £10
**Alum—**
B. Ayres, 15 t. 3 c. £78
Valencia, 5 15 30
Bari, 1 4 6
Oporto, 2 10
Lisbon, 5 17 28
Melbourne, 3 10 18
Bombay, 11 16 63
Montreal, 20 13 111
Larnaca, 1 7 7
Bilbao, 5 2 2 q. 26
Penang, 2 2 12
Malaga, 1 6 7
Beyrout, 3 15 22
Galatz, 4 16 28
Valparaiso, 2 12 15
Talcahuano, 2 2 12
**Alumina Sulphate—**
Pasages, 10 t. 2 c. £53
**Aluminous Cake—**
Calcutta, 12 t. 5 c. £44
**Ammonium Carbonate—**
Lisbon, 4 c. 2 q. £6
Rotterdam, 2 t. 1 3 58
Hamburg, 10 16
Copenhagen, 2 5 74
Danzig, 1 10 3 50
Genoa, 2 1 93
Naples, 13 21
**Ammonium Chloride—**
Smyrna, 1 t. £33
Vigo, 3 c. 2 q. 6
Newfairwater, 2 14 3 77
Cephalonia. 3 5
Philadelphia, 17 10 2 394
Boston, 5 169
Barcelona, 1 2 1 38
Demerara, 14 9 3 152
Montreal, 4 85
**Ammonium Sulphate—**
Valencia, 25 t. 8 c. £258
Barcelona, 51 10 520
Malaga, 50 600
Las Palmas, 50 4 516
**Amorphous Phosphorus—**
Hiogo, 3 c. 3 q. £40
**Asbestos—**
Axim, 2 cs.
Constantinople, 1 7 bls.
Maranham, 2 cks.
Bombay, 4 coils.
Oporto, 3 cs.
**Barium Sulphocyanide—**
Genoa, 10 c. £25
**Barytes—**
San Francisco, 17 cks.
Lisbon, 12
**Bleaching Powder—**
Boston, 846 cks.
Calcutta, 156 73 cs.
Chicago, 30 bxs.
Havana, 15
Lisbon, 57
Malta, 1
Montreal, 22
Naples, 8
New York, 56 10 kgs.
St. John's, Nfld., 2 cs.
Valparaiso, 13
Ancona, 61
**Boracic Acid—**
Havre, 5 t. 2 c. 1 q. £199
B. Ayres, 1 6 3 53
**Borax—**
Lisbon, 7 c. 2 q. £7
Newfairwater, 1 t. 2 1 35
Amsterdam, 18 2 28
Cadiz, 1 2 3 30
Havana, 1 1 30
Rotterdam, 6 11 3 203
Montreal, 5 1 150
Ibrail, 5 17
Stockholm, 1 3 30
Antwerp, 1 1 3 29
Seville, 2 75
Hamburg, 4 2 3 126
**Calcium Chloride—**
Boston, 50 t. 1 c. £95
**Carbolic Acid—**
Baltimore, 5 t. 2 c. 2 q. £257
B. Ayres, 8 1 23
Cadiz, 8 3 13
Antwerp, 18 6 751
Hamburg, 9 8 1 865

**Castor Oil—**
Sierra Leone, 6 cs.

**Caustic Potash—**
Antwerp, 2 t. 3 c. £51

**Caustic Soda—**
Bahia, 40 dms.
Baltimore, 370 brls.
Barcelona, 132 10a
Calcutta, 10 kgs.
Carthagena, 30
Chicago, 30 bxs.
Corunna, 20 brls.
Galatz, 161
Halifax, 31
Hamburg, 28
Hiogo, 200
Kansas City, 50
Matanzas, 25
Melbourne, 133 12 pkgs.
Montreal, 250
Nantes, 35
Naples, 189
New York, 328 120 brls.
Odessa, 100
Rotterdam, 28
Rouen, 35
St. John's, N.B., 50
San Francisco, 236
Savanilla, 10
Sydney, 17
Trieste, 12
Valparaiso, 40
Yokohama, 125
Alexandria, 18
Boston, 100
B. Ayres, 15
Carril, 10 4 kgs.
Dubugue, 50
Fiume, 189
Genoa, 77
London, Ont., 25
Malaga, 44 8 brls.
Mauritius, 4
Messina, 40
Milwaukee, 200
Monte Video, 20
Newport News, 150
Para, 6
Penang, 40
Pernambuco, 220
Piræus, 19
Shanghai, 50
Sourabaya, 30 kgs.
Stockholm, 15
Valencia, 32
Victoria, W.I., 36
" B.C., 2

**Chemicals** (*otherwise undescribed*)
Piræus, 3 c. £5
Ibrail, 6 10
Hamburg, 10 17
Marseilles, 12 20
Larnaca, 2 3
Alexandria, 3 t. 15 121
Genoa, 1 18 65
Rosario, 10 17
Smyrna, 1 10 50
Constantinople, 5 1 q. 23

**China Clay—**
Vera Cruz, 20 t.
Bombay, 55
Boston, 320

**Chloride of Lime—**
Rio de Janeiro, 2 t. 12 c. 1 q. £30
Baltimore, 65 8 520
New York, 48 17 403

**Citric Acid—**
Oporto, 1 kg. £9

**Coal Products—**
**Alizarine Oil**
Lisbon, 1 ck.
**Aniline Colours**
Constantinople, 11 cs.
Salonica, 8
Shanghai, 50
**Aniline Oil**
New York, 5 dms. 50 cs.

**Colours—**
Boston, 8 cs.
Demerara, 1 ck.
Montreal, 5

**Copperas—**
Syra, 7 t. 17 c. £15
Larnaca, 1 8 3
Volo, 4 1 1 q. 9
San Francisco, 27 10 2 57

**Copper Sulphate—**
Bari, 4 t. 2 c. £58
Genoa, 10 18 2 q. 156
Syra, 15 1 11
Oporto, 1 19 2 28
B. Ayres, 2 2 25
Konigsberg, 1 2 3 16
Montreal, 10 2 2 143
Rouen, 10 18 163
Barcelona, 3 2 5
Capetown, 6 90
Ancona, 29 18 422
Rotterdam, 5 1 69
Antwerp, 10 3 1 140

**Disinfectants—**
B. Ayres, 7 c. £9
Havana, 6 23

**Dried Blood—**
Barbadoes, 15 t. £110

**Farina—**
Ghent, 50 bgs.

**Guano—**
Malaga, 10 t. £70

**Horn Piths—**
Rouen, 126 bls.

**Limestone—**
New York, 5 cs.

**Magnesia—**
Pernambuco, 1 cs.

**Magnesium Carbonate—**
Havana, 1 t. 12 c. £75

**Manure—**
Nantes, 50 t. £100
Barbadoes, 15 113

**Metallic Sodium—**
Rotterdam, 2 t. 8 c. £488

**Ochre—**
Bahia, 25 brls.

**Oxalic Acid—**
Lisbon, 8 c. £12
Bilbao, 1 t. 28
Montreal, 3 2 q. 89
Syra, 1 28
Barcelona, 5 5 136

**Mercuric Oxide—**
Callao, 1 cs. £11

**Paint—**
Alexandria, 13 dms. 36 kgs.
Amsterdam, 2 cs.
Calcutta, 22 9
Capetown, 8 cks.
Cienfuegos, 6
Constantinople, 5 dms.
Genoa, 1 bx. 15
Hamburg, 10
Maranham, 4
Nassau, 2
New York, 256
Pt. Elizabeth, 2
Smyrna, 80
Valdivia, 9
Valparaiso, 25 cs. 7
Baltimore, 10
B. Ayres, 4 8 23 50 brls.
Cadiz, 60 dms.
Callao, 74
Copenhagen, 40
Curacao, 1
Demerara, 7 80
Jaffa. 5
Larnaca, 2
Las Palmas, 2 26
Lisbon, 2 cs. 27 350
Para, 7 pkgs.
Paris, 25
Pernambuco, 6 brls. 215 10
Ponce, 2 cks.
Sierra Leone, 5
Tumaco, 2 cs.

**Painters' Colours—**
Bahia, 3 cs. 105 kgs. 7 cks. 20 brls.
B. Ayres, 30 17 44
Hamburg, 10 5
Havana, 25
Malta, 130 3
Montreal, 225 84
Naples, 65
Nassau, 5 cs. 197 4
Natal, 5
N. York, 2 24 dms. 20
Para, 15 tcs. 102 bgs. 30 6
Rangoon, 20 dms. 4 320 kgs.
Rio Grande, 25
" Janeiro, 4 35
St. John's, Nfld., 35 386
San Francisco, 6
Bremen, 3 bgs. 22
New Orleans, 200
Pernambuco, 35
Santos, 30
Valencia, 1 cs.
Vigo, 10 brls.
Warre, 2 3

**Paraffin Wax—**
Maranham, 1 cs.
Odessa, 15 bgs.
Smyrna, 42
Lisbon, 10
San Sebastian, 76

**Phosphorus—**
Shanghai, 37 cs. £370
Hiogo, 10 130
Yokohama, 5 50

**Pitch—**
Calcutta, 10¾ t.
Cette, 799
Alexandria, 4¼
Galatz, 30 brls.
Lisbon, 6 cs.
New York, 68 cks.

**Plumbago—**
Bilbao, 10 cks.
Smyrna, 1

**Potassium Bichromate—**
B. Ayres, 9 c. 2 c. £20

**Potassium Chlorate—**
Hiogo, 8 t. 10 c. £504
Melbourne, 1 2 54
Naples, 1 56
Yokohama, 2 10 114
Bari, 15 40
New York, 16 863

**Rosolic Acid—**
New York, 2 c. £19

**Salt—**
Boston, 320 t.
Maranham, 11
Montreal, 454 13 c.
New York, 130 6
Victoria, W.I., 100
Accra, 12¼
Amsterdam, 147
Antwerp, 270
Appam, 6¼
Barbadoes, 50
Benin, 5
Boma, 20
Calcutta, 7,910
Chicago, 130
Ghent, 437
Grand Bassa, 10
Melbourne, 50
N. Orleans, 1,340½
Nogui, 46 17
Pernambuco, 8
Rio de Janeiro, 2 4
Rotterdam, 167
Singapore, 16
South Omaha, 350
Trinidad, 33 2
Warre, 3 11

**Salt Cake—**
Baltimore, 233 t. 7 c. £518

**Saltpetre—**
Barcelona, 7 t. 10 c. £150
Para, 1 22
Larnaca, 12 2 q. 13
Maceio, 2 13 2 60
Porto Alegre, 2 4 3 52
Pernambuoo, 4 5 3 87

**Sheep Dip—**
B. Ayres, 11 t. 1 c. 2 q. £45
Calcutta, 11 14
Charlottetown, 8 9

**Soap—**
Alexandria, 96 cs.
Amsterdam, 100 bxs.
Bombay, 1 8 cks.
Brussels, 400
Cairo, 20
Calcutta, 9
C. C. Castle, 1 100
Colombo, 9
Demerara, 550
Genoa, 185
Havre, 225
Limassol, 6
Malta, 32
Maranham, 3
Montreal, 200
New York, 59 450 7
Rotterdam, 100
St. Thomas, 1
Teneriffe, 500 1,029
Accra, 150 bxs.
Algoa Bay, 1,052
Antigua, 85
Appam, 182
Arica, 3 cs.
Assinee, 20
Barbadoes, 400
Cameroons, 150
Capetown, 50
Constantinople, 300
Curacao, 725
E. London, 850
Gibraltar, 100
Gr. Canary, 422
Jersey, 70
Jones River, 100
Lagos, 42
Natal, 1,000
Nipongwe, 120
Palma, 224
Pt. Elizabeth, 50
" Said, 26
Rangoon, 3
St. John's, Nfld., 385
" Lucia, 85
Salaverry, 86
Salt Pond, 100
Sav.-la-Mar, 363
Sierra Leone, 160
Singapore, 1,300
Trinidad, 1,200
Winnebah, 50

**Soda—**
Hong Kong, 1 bx.
Toronto, 350 kgs.

**Soda Alkali—**
Montreal, 60 brls.
Odessa, 100
Smyrna, 35
Toronto, 100
Victoria, W.I., 17

**Soda Ash—**
Baltimore, 1,071 cks. 640 bgs.
Boston, 272 800
Fenelon Falls, 26
Genoa, 18
Georgetown, 40
Havana, 3
Hespelier, 13
Magog, 80
Melbourne, 262 pkgs.
Montreal, 21
New York, 1,059 7,416 bgs.
Oporto, 4 brls.
Piræus, 65 15
Porto Alegre, 125
Rio Grande, 50
Rosario, 50
San Francisco, 127
Talcahuano, 30
Toronto, 26
Adelaide, 43
Ancona, 6
Bombay, 9
Calcutta, 25
Monte Video, 70
Naples, 14
Natal, 4
N. Orleans, 5
Philadelphia, 897 1,
Rio de Janeiro, 50
Santander, 21
Santos, 10
Valparaiso, 50 50
Yokohama, 115

**Soda Crystals—**
Boston, 560 brls. 500 kgs
Galveston, 10
Genoa,
Hamilton, 265
London, Ont., 250
Malta,
Montreal, 334 750
Philadelphia, 280
Valparaiso, 100 100
Alexandria, 20
Beyrout, 20
Bombay, 220
Constantinople, 50
New York, 250
Singapore, 5

**Sodium Biarseniate—**
Rouen, 4 cks.

**Sodium Biborate—**
Hamburg, 20 t. 18 c. 2 q
Antwerp, 20 14 3
Havre, 5

**Sodium Bicarbonate—**
Barcelona, 200 kgs.
Brantford, 100
Carthagena, 50
Catania, 70
Genoa, 185 3 cks.
Halifax, 150
Hamburg, 45 23 4
London, Ont., 5
Marseilles, 100
Melbourne, 427 30
Messina, 25
Montreal. 1,850
Naples, 30
Rotterdam, 100
Rouen,
Seville, 20
Smyrna, 50
Toronto, 10
Trieste, 100
Valencia, 40
Adelaide, 175
Bahia, 15
Beyrout, 20
Bombay, 210
Carthagena, Sp.,
Galatz,

Guadalaxara, 200
Havana, 40 20
Kurrachee, 20
Mauritius, 20
Newfairwater, 550
New York, 100
Stettin, 20
Valparaiso, 400
Victoria, B.C., 430
Yokohama, 250 bgs. 4

**Sodium Carbonate—**
Boston, 84 brls.

**Sodium Chlorate—**
Rotterdam, 30 kgs.

**Sodium Silicate—**
Adelaide, 27 dms.
Ancona, 5 brls.
Barcelona, 105
Bilbao, 318
Seville, 50

**Spent Oxide—**
Antwerp, 305 t. 6 c. £195

**Sulphate of Lime—**
Rio de Janeiro, 19 t. 3 c. £48

**Sulphur—**
Calcutta, 6 t. £30
Boston, 130 4 c. 676
Antwerp, 5 2 30
E. London, 10 5

**Sulphuric Acid—**
Rio Grande do Sul, 19 c. 2 q. £10

**Superphosphate of Lime—**
Valencia, 25 t. 4 c. £66

**Tallow—**
Assinee, 3 cs.
Oporto, 6 brls.
Vigo, 33
Bilbao, 28

**Tannic Acid—**
Lisbon, 1 c. 1 q. £7

**Tar—**
Galatz, 130 brls.
Genoa, 6 cks.
Montreal, 6
Underhill, 10 brls.

**Tartaric Acid—**
Montreal, 15 c. £80

**Turpentine—**
B. Ayres, 20 dms.

**Varnish—**
Beyrout, 1 cs.
Barranquilla, 1
Boma, 12 brls.
Bombay, 5
Demerara, 5 10 dms.
Genoa, 3 cs. 2 cks.
Las Palmas, 3
Leghorn, 1
New Orleans, 1

**White Lead—**
Porto Rico, 32 kgs.

**Zinc Chloride—**
Bombay, 11 t. 13 c. 1 q. £182

## HULL.

*Week ending October 29th.*

**Aluminium—**
Rotterdam, 3 cs. 1 ck.

**Benzol—**
Ghent, 8 cks.

**Bleaching Powder—**
Abo, 9 cks.
Bremen, 3
Danzig, 45
Genoa, 32
Harlingen, 33
Stettin, 183

**Caustic Soda—**
Abo, 28 cs. 200 tins.
Antwerp, 2 cks.
Danzig, 31 dms.
Helsingfors, 29
Hango, 40
Rotterdam, 8 cks.
Reval, 15 dms.
Stettin, 34
Wyburg, 72
Wasa, 6 cs.

**Chemicals** (*otherwise undescribed.*)
Abo, 8 cks.
Amsterdam, 8 pks.
Antwerp, 6 cs. 3
Bremen, 3 cks.
Christiania, 2 cks. 5 cs. 19 pkgs. 653 slbs.
Copenhagen, 9 cks. 6
Dunkirk, 25
Danzig, 6 cs. 52 30
Gothenburg, 5 cs. 12 cks. 45 pkgs.
Genoa, 10
Helsingfors, 4
Hango, 1
Hamburg, 43 5 1 pkg.
Konigsberg, 2 2 pkgs.
Libau, 30 kgs.
Leghorn, 12
Rouen, 25
Rotterdam, 36 13 91 pkgs.
Stettin, 18 pks. 3
Wyburg, 5
Wasa, 9 24 pks.

**Cottonseed Oil—**
Amsterdam, 235 c.
Antwerp, 116
Copenhagen, 201
Hamburg, 2,513
Konigsberg, 202
Leghorn, 300
Marseilles, 3,180
Naples, 70
Norrkoping, 104
Rotterdam, 1,598
Stockholm, 100
Stettin, 1,043
Trieste, 400

**Creosote—**
Danzig, 90 cks.
Rotterdam, 44

**Dyestuffs** (*otherwise undescribed*)
Gothenburg, 3 pkgs.
Hamburg, 1 cs.
Rotterdam, 7 cks.
Stettin, 5

**Linseed Oil—**
Bremen, 173 c.
Christiania, 269
Christiansand, 121
Copenhagen, 10
Drontheim, 70
Genoa, 18
Hamburg, 1,316
Rotterdam, 68
Stettin, 803

**Manure—**
Dunkirk, 149 bgs.
Rouen, 56 t.

**Mineral White—**
Hamburg, 50 bgs.

**Naphtha—**
Antwerp, 10 cks.

**Ochre—**
Hamburg, 16 cks.

**Painters' Colours—**
Abo, 3 cks.
Amsterdam, 9 pks.
Antwerp, 6 cs. 42 20 cks.
Christiania, 1 cs. 17
Copenhagen, 3
Dunkirk, 8
Danzig, 20
Drontheim, 5
Gothenburg, 5 cks. 4 pkgs.
Ghent, 14
Genoa, 45
Hamburg, 72 2 dms.
Leghorn, 30
Naples, 4 5 pkgs.
Rouen, 3
Rotterdam, 2 cs. 9 19
Stettin, 90
Wasa, 3 dms.

**Pitch—**
Antwerp, 173 t.
Dunkirk, 101

**Size—**
Bremen, 15 cks.

**Soap—**
Antwerp, 25 cs.

**Tallow—**
Gothenburg, 5 cks.

**Tar—**
Copenhagen, 20 cks.
Gothenburg, 1
Hamburg, 10
Leghorn, 10

**Varnish—**
Ghent, 3 cs.
Genoa, 4
Rotterdam, 4 cks.

## GLASGOW.

*Week ending November 3rd,*

**Ammonium Sulphate—**
Demerara, 88 t. 2¾ c. £892

**Benzol—**
Rotterdam, 6 dms. £60

**Bleaching Powder—**
Hong Kong, 15 t. £170

**Caustic Soda—**
Demerara, 3 t. 6¾ c. £35

**Dried Blood—**
Rouen, 10 t. £70

**Farina—**
Antwerp, 5 t. £80

**Lead Acetate—**
Bombay, 4 t. 9¼ c. £39

**Magnesium Sulphate—**
Christiania, 10 t. £32

**Manganese—**
Antwerp, 11 t. 7 c. £89

**Naphtha—**
Rouen, 17 t. £265

**Paint—**
Colombo, 4 t. 1 c. £55
Penang, 3 5¾ 35
New York, 2 13¾ 47

**Painters' Colours—**
Calcutta, £35
Trinidad, £20. 13s.

**Paraffin Wax—**
Japan, 39½ t. £948
Austria, 1 11½ c. 58
Venice, 1 3 43

**Pitch—**
Madras, 12 t. 4 c. £23. 15s.
Calcutta, 43. 15s.
Riga, 28 £39
New York, 60 125

**Potassium Bichromate—**
Rotterdam, 2 cks. £30
Rouen, 10 t. 19¼ c. £435

**Potassium Prussiate—**
Rouen, 5 t. 7 c. £297

**Rosin—**
Bombay, 32 t. 14 c. £179

**Rosin Oil—**
Philadelphia, 3 t. 5 c. £34

**Saltcake—**
Antwerp, 263 t. 18¼ c. £528
Ghent, 285 6 560

**Silicate—**
Montreal, 6 t. 3 c. £90

**Soap—**
Colombo, 1 t. 7 c. £27
Calcutta, 3¾ 52
Trinidad, 22 275

**Sodium Bichromate—**
Christiania, 1 ck. £16
Bombay, 1 t. 18 c. £47

**Tar—**
Madras, 21½ t. £39
Calcutta, 473
Riga, 70 brls. 32

## TYNE.

*Week ending October 29th.*

**Alkali—**
Amsterdam, 42 t. 8 c.
Rotterdam, 3 5

**Alum Cake—**
Montreal, 5 t. 2 c.

**Alumina Sulphate—**
Montreal, 10 t.

**Ammonia—**
Barcelona, 11 t. 3 c.
Odessa, 2 15

**Ammonium Carbonate—**
Montreal, 1 t.

**Ammonium Chloride—**
Odessa, 1 t. 8 c.

**Ammonium Sulphate—**
Dunkirk, 20 t.

**Antimony—**
Hamburg, 5 t.
Montreal, 7
Rotterdam, 3
Barcelona, 12 c.
Gothenburg, 12

**Arsenic—**
Barcelona, 1 t.

**Barytes—**
Hamburg, 149 t. 18 c.

**Bleaching Powder—**
Antwerp, 29 t. 5 c.
Amsterdam, 32 19
Lisbon, 5 3
Hamburg, 146 11
Genoa, 10 14
Gothenburg, 25 4
Montreal, 63 5
Rotterdam, 11 10
Drontheim, 10 4

**Caustic Soda—**
Amsterdam, 9 t. 17 c.
Hamburg, 15 19
Genoa, 12 2
Montreal, 55 2
Copenhagen, 1 9
Gothenburg, 20
Barcelona, 9
Odessa, 18 3
Venice, 29

**China Clay—**
Montreal, 10 t.

**Colours—**
Genoa, 11 c.

**Linseed Oil—**
Hamburg, 2 t. 3 c.

**Litharge—**
Amsterdam, 16 c.
Hamburg, 1 t. 3
Montreal, 22 18
Rotterdam, 17

**Magnesia—**
Hamburg, 1 t. 3 c.
Genoa, 4
Barcelona, 10

**Paint—**
Antwerp, 5 c.
Hamburg, 17½
Genoa, 5 t. 15
Naples, 1
Leghorn, 1 1

**Phosphorus—**
Barcelona, 16 c.

**Pitch—**
Pomaron, 6 t. 10 c.

**Soda—**
Amsterdam, 5 t. 18 c.
Drammen, 9 7
Montreal, 25 1
Copenhagen, 50 1
Rotterdam, 11 17
Odessa, 16

**Soda Ash—**
Lisbon, 25 t. 13 c.
Genoa, 10 4
Calmar, 100 1
Copenhagen, 10
Gothenburg, 35
Barcelona, 10 10

**Sodium Silicate—**
Genoa, 1 t. 16 c.
Bilbao, 16 17
Barcelona, 16 8

**Sodium Sulphate—**
Venice, 20 t. 9 c.

**Sulphur—**
Ghent, 10 t.
Antwerp, 27
Christiania, 75
Drammen, 100
Rotterdam, 20 t. 10 c.
Fredrikstad, 50

**Superphosphate—**
Venice, 100 t. 1 c.

**Tallow—**
Hamburg, 2 t. 3 c.

**White Lead—**
Lisbon, 5 t. 1 c.
Montreal, 135 17

## GOOLE.

*Week ending October 19th.*

**Benzol—**
Ghent, 16 dms.

**Bleaching Powder—**
Antwerp, 15 cks.

**Coal Products** (*otherwise undes.*)
Ghent, 4 cks. 10 tins.

**Dyestuffs** (*otherwise undescribed*)
Antwerp, 1 ck. 1 dm.
Boulogne, 4 cks. 4 pkgs.
Ghent, 2 10 tins. 10 dms.

**Manure—**
Rouen, 351 bgs.

**Pitch—**
Antwerp, 144 t.

## GRIMSBY.

*Week ending October 22nd.*

**Alkali—**
Hamburg, 150 cks.

**Chemicals** (*otherwise undescribed*)
Dieppe, 9 cks. 4 cs. 13 pkgs.

**Coal Products** (*otherwise undesc'd.*)
Dieppe, 295 cks.

**Dyestuffs** (*otherwise undescribed*)
Dieppe, 38 cks.

# PRICES CURRENT.

WEDNESDAY, Nov. 9th, 1892

PREPARED BY HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may va*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids :—** | | | | |
| Acetic, 25 °/₀ and 40 °/₀ | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | | 50/- | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3¼ |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 °/₀) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 10 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 1 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/-& 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 10 | 2 | 6 |
| ,, ,, (grey) Hull | ,, | 10 | 2 | 6 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6¼ |
| Aniline Salt ,, | ,, | 0 | 0 | 6 |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 3 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes :—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8 |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 9 |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 7 |
| ,, 50/90 ,, | ,, | 0 | 1 | 3 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 5 |
| ,, (crude 60°) | per gallon | 0 | 1 | 5 |
| Creosote (ordinary) | ,, | 0 | 0 | 1½ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 0 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 1 | 0 |
| Coke-oven Oils (crude) | ,, | 0 | 0 | 1 |
| Copper | per ton | 45 | 10 | 0 |
| ,, Sulphate | ,, | 15 | 0 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 10 | 0 |
| ,, Litharge Flake (ex ship) | ,, | 13 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 6 | 5 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 3 | 9 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 4 | 7½ |
| **Oils :—** | | | | |
| Cotton-seed | per ton | 18 | 10 | 0 |
| Linseed | ,, | 18 | 10 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 7½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 12 | 6 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 | 0 |
| Silver (metal) | per oz. | 0 | 3 | 2½ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 2 | 6 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 5 | 15 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 18 | 10 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 15 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Borate (Borax) | net, per ton | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | net pr. ton (10 ton lots) | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, | 9 | 2 | 6 |
| ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 15 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 10½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¼ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 15 | 0 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7¼ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7½ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone : Best Quality (nominal) | ,, | 4 | 15 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 97 | 10 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 18 | 17 | 6 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# HEMICAL TRADE JOURNAL

AND

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ents intended for insertion in the current week's issue he office by **Wednesday morning** at the latest.

## CURRENT TOPICS.

### SCIENTIFIC ADULTERATION.

THE annual report of the Local Government Board, in which is embodied the work done by the public analysts to local authorities, is always interesting, while it generally contains one or two items of information which evoke comment. The report this year is certainly no exception to the rule.

It is satisfactory to note that on the whole the crusaders against the adulteration of food have been successful, although the returns for the past year show that over 12 per cent. of the samples examined were adulterated.

This figure is higher than the percentages of adulterated goods obtained in the three previous years, but it must not be forgotten that in the three preceding years the percentage of adulteration was exceptionally low.

When speaking of last year's report we made mention of the growth of a new difficulty for the public analysts, in that their antitypes, analysts employed by private firms, were as busy devising means to "dilute" with discretion, as the public analysts were in exposing such "dilution."

This situation has seemingly during the past twelve months developed into a pitched battle. The process of successful adulteration—if we may use the word successful in such a sense—is becoming a fine art, though we should be loth to express a decided opinion as to its legitimacy. This will in all likelihood be a point for the new Commercial Court to settle in the course of time.

Though the adulterator possesses the advantage of secrecy at present, the public analyst has the aid of the law when he does convict, and he succeeds in making things pretty hot now and then.

The days when the cream of London milk used to defy the laws of nature by setting at the bottom instead of the top (and this feature, by the way, was not peculiar to London milk alone), are days of the past, and now a new order has arisen. Yet, despite the use of sugar, starch, and other farinaceous mixtures in the preparation of extra strong unskimmed, a company trading under a very re assuring name was quite recently convicted of adulteration, and fined to a tune which would curdle the cream of a good many gallons of the genuine mammalian product.

The opposing forces, therefore, at present seem to be fairly well matched, and it remains for another year to show the vantage ground which either side will gain.

### A TIMELY HINT.

Though more fortunate so far this year in the matter of fogs than last, we have been treated to one or two which have been quite dense enough to remind us that our fractious foe has not been rendered any thinner by the worrying he has received during the summer months from sanitarians and others. The scarcity and poorness of the gas supply in the metropolis and many of the leading provincial cities and

towns during the fogs of last winter aroused an exceptionally large number of complaints; and a correspondent writing to the *Times* very opportunely reminds the public of the special provisions which it was announced were then being made to avoid the recurrence of the serious inconveniences experienced last year.

There is more than one place outside of London where such provision was stated to be in active preparation eleven months ago, and the effect of the extensions will be looked for with anxious interest. We hope the trusting public will not be subjected to the damping effect of dismal disappointment as well as that of the fog itself.

## PRACTICAL HINTS ON LUBRICANTS.

COMPETITION among manufacturers to-day demands that the utmost caution be taken to reduce the wear and tear on the machinery, to avoid loss of time, and above all, to save fuel. In almost every case the correct use of proper oil will be found the precaution necessary.

A lubricant may apparently do good work and keep the part cool, but in reality the acid formed by the friction and heat of the journals is daily damaging the surface of the metal and will ultimately do great damage.

Consumers have for years been accustomed to rely upon the salesman, whose knowledge of the goods he sells is usually found to be very deficient. Nor can every engineer's report on an oil be relied upon; many are really ignorant, while others are personally interested.

Some months ago I engaged a salesman," says a writer in the *American Engineer*, "and active an intelligent engineer who professed to know something about oils, and whose general ideas about lubrication seemed sensible. Upon canvassing a part of the district allotted to him with good success, so far as he went, the firm received a letter from him, saying: 'I used to think I knew something about oil, but have come to the conclusion that my knowledge will not extend beyond the outside of the barrel.' This is what nine-tenths of the engineers would come to if their knowledge were put to a practical test.

"A good oil should be used as sparingly as the nature of the bearings will permit. The amount of resistance (friction) generated by the bearings depends upon the number of revolutions a minute a machine is capable of making and the amount of power transmitted by it. In the use of oil, uniformity of distribution is as important as the regularity of supply. A dry spot on a bearing will at once cause heating, and if allowed to continue, cutting will be the result.

"There is no department in a factory more important than the engine room. As the diminishing of friction will naturally result in gain of power, it is to the consumer's interest to learn by careful experiment the oils that are best adapted to run his plant, and to make the necessary tests of density, fire test and viscosity. By so doing he can be certain to receive exactly what his machine requires, and run it at the lowest possible cost.

"'Poor oils,' says an eminent engine builder, 'are a prolific source of injury, and often defeat the purpose for which a machine was intended.'

"If a machine is not properly lubricated it will bind, heat, and then cut, and the percentage of work added to the already overtaxed Corliss is sure to injure the engine, and certainly needs an extra dip now and then into the coal pile.

"No oil has been made that can economically lubricate all the journals of a mill. An oil running a heavy engine would not do to run a spindle or a fast-revolving dynamo. The former runs slowly and has great pressure and strain on its journals, and consequently requires an oil that will not spread too quickly, but with low gravity and high viscosity. The latter needs a pure mineral oil, viscous and quick-spreading, to enable it to enter into the closest parts of the bearing as rapidly as the speed at which it revolves necessitates.

"In making an oil for a specific purpose, the speed, power, pressure upon the journals, mode of application, and temperature at which it has to run should be known. This information in hand, an oil can be made to suit.

"The numerous tests that have been made by learned men at various times within the last twenty-five years tend to show that mineral lubricants are the safest. When vegetable and animal oils become old, decomposition takes place, acid is set free, and the oils become rancid. Rancid oil will attack and injure machinery. Mineral oil does not absorb oxygen, whether alone or in contact with cotton *waste*, and cannot, therefore, take fire spontaneously; animal and vegetable oils do. Mineral lubricating oils are used on all kinds of machinery; they are the safest and cheapest lubricants, and are generally superior to animal and vegetable oils and greases.'

"According to experiments by Galletry and Coleman, it was found that 'mineral lubricating oils diffused through textile cotton do not take fire even at a temperature at which colza oil ignites, and that fatty lubricants to which 20 to 50 per cent. of mineral oil was added were thereby prevented from igniting.'

"Spon says: 'A mineral oil flashing below 300° is unsafe. The best oil is that which has the greatest adhesion to metallic surfaces and the least cohesion in its own particles. In this respect fine mineral oils stand first. No oil is admissable which has been purified by means of mineral acids. Mixed oil, if properly compounded, possesses the special advantages of both classes.'

"The blending of mineral and animal oils does not merely consist in shaking them together, as is supposed by many, but as they are of different gravity, the globules of each must be broken and run into each other by agitation and heat, so that the oil will become one body. If this is not done, the animal oil will become separated, and standing in a heated room, the bad qualities will become manifest, and when used, the oil cannot do its work, and at once the quality is condemned.

"I had a case where a large mill owner was using oil said to be one part sperm and three parts paraffine, of heavy gravity. The price was lower than I knew it could be made for. Upon analyzing a sample drawn from the barrel I found it contained 60 per cent. of sperm and 40 per cent. of paraffine, showing that the oil was separating. The sperm oil being lighter was coming to the top. Such oils cannot give satisfactory results.

"If you have any stipulated formula, have it made up for you by people who understand the business, and who have the facilities and appliances for doing it properly.

"Mr. Allen's experiments have shown that gumming is due to the action of free acid upon the metal bearings of the machinery.

"The corrosion of bearings by oils has not received the attention it deserves, as the wear and tear of the metals and thickening of the oils has been attributed to other causes. Liquid oils corrode metals very evenly, so that the effect is not readily observed. Mineral oils contain no acid, unless they have been carelessly refined.

"I. J. Redwood says: 'Mineral lubricating oil has the least action on metals; none on iron or brass. Tallow oil has most action on iron; castor, olive, and lard oils have most action on brass. Rapeseed has most action on copper."

## ARTIFICIAL STONE.

THE manufacture of artificial stone for pavements, roofing and other building purposes has become important as an industry. Many of the processes for making such stone are patented, and lately three new processes have been added to the list. The following description of the manner in which these are carried out is of interest:

1. To 4 parts by weight of a solution of magnesium chloride of about 35° Baumé are added 4 parts by weight of magnesium oxide; these are then mixed with about 3 parts of fluorspar pulverized, stirring the mixture thoroughly. After the ingredients are thoroughly mixed so as to form a plastic mass, the articles desired are formed in moulds or dies, applying pressure thereto if required. The composition can be tinted or coloured by adding any suitable colouring matter to the mass before it is placed in the moulds. The mass begins to crystallize after about six hours in the ordinary temperature, and it becomes hard in about twenty-four hours. The product is an artificial stone, which is said to resist fire and water, and is of great hardness and strength. It can be used in the form of tiles for pavements or for roofs, and as ornaments for buildings, monuments, statuary, and a variety of other articles which are usually cut or chiseled from stone or produced by moulding and baking.

2. About 8 parts, by weight, of magnesium silicate are boiled in hydrochloric acid of 20° Baumé. About 10 parts, by weight, of hydrochloric acid are used, and the boiling is continued for from ten to fifteen minutes, and then there is added to the mass about 10 parts, by weight, of magnesium oxide. These substances are thoroughly mixed, thereby generating a silicious oxymuriate of magnesium. If the composition is to be used as a cement this must be done while it is in a wet or plastic state; but if the composition is to be used for stone, it is moulded or shaped into the required form and then allowed to dry, whereby the mixture becomes set or hard and retains the required form.

3. Dolomite is calcined at a red heat for from four to ten hours. Twelve parts of the powder thus obtained are treated with about 9 parts of hydrochloric acid of about 1·16 specific gravity. The action of the hydrochloric acid upon the powdered calcined dolomite produces hydrate of lime and a solution of magnesium chloride of about 35°

, With the hydrate of lime and the solution of magnesium e obtained by the treatment described there are mixed 24 parts t dolomite in powder, and to this mixture about 1 part of a n of sodium silicate of about 26° Baumé is added. This produces ous magnesia limestone of great hardness. The quantity of lolomite employed should be sufficient to neutralise the hydro- acid, and it is obvious therefore that the proportion of dolomite ave to be changed according to the nature of the dolomite ed. The neutralization and treatment described produces about s of hydrate of lime and of the solution of magnesium chloride, tioned, which materials, when mixed with about 24 parts of dolomite and about 1 part of a solution of sodium silicate of 26° Baumé, produces an artificial stone of great hardness and of resisting the influences of the atmosphere and of moisture ich can be heated to a red heat without danger of crumbling or gration.

proportions given are by weight. The product will harden in y temperatures in about twenty-four hours and attain its full ss in from seven to nine days.

## EXPORTS OF ALKALI AND BLEACH.

following figures, which are taken from the Official Foreign nd Colonial Statistics of the United Kingdom, give the amount lue of alkali and bleaching materials shipped to the under- ned countries during the month of September, 1892, as compared e same month in 1891 :—

ALKALI.

| Port. | 1891. Cwts. | 1892. Cwts. | 1891. £ | 1892. £ |
|---|---|---|---|---|
| ..... | 10,517 | 37,112 | 4,765 | 16,795 |
| and Norway ..... | 7,963 | 7,795 | 2,711 | 2,295 |
| ny ..... | 7,374 | 10,787 | 3,640 | 4,295 |
| d ..... | 3,907 | 4,571 | 1,308 | 1,463 |
| ..... | 2,656 | 2,662 | 1,133 | 1,146 |
| nd Canaries ..... | 19,527 | 21,327 | 9,059 | 10,592 |
| ..... | 17,388 | 14,585 | 8,180 | 6,508 |
| States..... | 316,397 | 333,522 | 108,351 | 109,379 |
| asia ..... | 19,996 | 9,511 | 7,785 | 3,413 |
| North America ..... | 19,990 | 20,748 | 6,921 | 6,186 |
| Countries..... | 143,285 | 56,478 | 66,669 | 22,673 |
| Total ..... | 569,000 | 519,098 | 220,522 | 184,744 |

BLEACHING POWDER, ETC.

| Port. | 1891. Cwts. | 1892. Cwts. | 1891. £ | 1892. £ |
|---|---|---|---|---|
| States..... | 85,688 | 71,220 | 30,171 | 29,682 |
| Countries..... | 46,619 | 70,074 | 16,064 | 27,736 |
| Total ..... | 132,307 | 141,294 | 46,235 | 57,418 |

## THE LABOUR COMMISSION.

he meeting of the Miscellaneous Trades Section of the Royal Commission last week, Mr. Leonard Courtney, M.P., presided, eing also present Mr. M. Austin, M.P., Mr. G. Livesey, and Mr. w, with Mr. John Burnett and Mr. Geoffrey Drage, joint sec- .

OIL MILLS.

G. Adams, representing the Oil Mills and Seed Crushers' of London, gave evidence as to the conditions of labour in con- with oil mills in London. He said the mills worked contin- night and day, except for a few hours on Sunday, the men work- wo gangs for 12 hours each. He gave details of a strike which d amongst them in 1889, which lasted four months, and on which ck and Riverside and General Labourers Union spent £1,700. time of the strike men joined the union within five minutes of out, in order to get the strike benefits, and left it again directly ke was terminated so that there were only 70 union members out employed. He complained of the heat to which the men were ed in the mill work and suggested that as soon as the temperature 100 deg. a fan should be put into operation, or that holes should ed through the upper floors of the building. The sanitary arrangements were frequently very bad, but improvements had been made in many mills. With regard to the safeguarding of machinery, that had been largely attended to, and inspectors had visited the mills to see that the proper arrangements were carried out. In one large mill, he said, there was a large wheel, weighing more than a ton, revolving at great speed, and 2ft. from that there was a large pair of stones, weighing seven tons, and it was necessary for the men to pass between the revolving stones and the iron wheel; but no accidents had arisen because the men got sufficiently alert to dodge between them. The rapeseed and linseed, in being unloaded, was shot out of bags, which caused a large amount of dust to rise, so that the men had to work with gags on their mouths, and for this work they were paid at the rate of 6d. per 100 bags. He advocated the adoption of an eight-hours day and the establishment of a labour bureau in each parish, which would lead to the absorption of a large number of the unemployed. He did not, however, overlook the fact that the extra wages would have to come either out of the employers' profits or the increased price of seed, and that the latter would mean a serious blow to the English trade, so that instead of the men being employed either twelve or eight hours a day they might not be employed at all. The eight hours day, he thought, should be carried out by a census taken of the workers, whose decision should be given effect to by Parliament.

## COUNTING EGGS BEFORE THEY ARE HATCHED.

A CORRESPONDENT writing to the *Financial News*, gives the following information which will doubtless be of interest to many of our readers. He says:—It may be interesting to many investors to have some idea as to the probable profits of the above company for the year ending December 31 next. I will therefore show what I consider it will be on the several articles manufactured :—

| | Tons. | | |
|---|---|---|---|
| Salt cake ..... | 500,000 | used in manufacture. | |
| Chloride of lime ... | 125,000 | ..... | £562,000. |
| Chlorate of potash | 4,5000 | ..... | 135,000. |
| Soda ash ..... | 100,000 | ..... | 130,000. |
| Caustic soda ..... | 140,000 | ..... | 175,000. |
| Sulphur ..... | 30,000 | ..... | 45,000. |
| Muriatic acid, sulphuric acid, soda crystals, bicarbonate of soda, sulphate of copper, copper precipitate, caustic and carbonate of potash, crystal carbonate, manganate of soda, pearl hardening, bichromate, salammoniac, sulphate of ammonia, superphosphates ..... | | Say | 150,000. |
| Total profit for 1892 ..... | | | £1,197,000. |
| Less, say, 5 per cent. for differences ..... | | | 60,000. |
| | | | £1,137,000. |
| Add balance brought forward from last year..... | | | 196,000. |
| | | | £1,333,000. |
| Deduct :— | | | |
| Five per cent. on mortgage, say | | £125,000. | |
| Seven per cent. on preference shares ... | | 200,000. | |
| | | | 325,000. |
| Balance ..... | | | £1,008,000. |
| Say, for distribution as follows :— | | | |
| Twenty per cent. on ordinary shares ... | | £600,000 | |
| Balance to reserve account..... | | 408,000 | |
| | | | £1,008,000. |

It may be said that the best balance sheet does not justify such a profit; but I contend that when the stocks at the several works were taken over by the company, too much was paid for them, and also that there were many contracts running by the vendors, which had to be taken over by the new company for 1891, both for raw materials and manufactured goods, at much higher prices for the former and lower for the latter than that which has been paid for the same materials during 1892, notably fuel, of which nearly 2,000,000 tons a year is consumed. I have no hesitation in stating that over £100,000. has been saved on this article alone during 1892. The company must also have lost heavily last year, owing to the great fall in the value of copper, which article they are always large holders of, which will not affect this year's profits. It must also be noted that nearly £27,000. was written off for preliminary expenses in the last balance-sheet; this will not occur in 1892.—It is perhaps worth noting that the depression in the shares of the United Alkali Co., Ltd., has given place to activity, whether this is in any way due to the foregoing rosy estimate our readers can most likely judge for themselves, individually.

## THE ANALYSIS OF MYRABOLAMS.*

THE myrabolams of commerce consist of a mixture of the fruits of several species of *Terminalia*. the principal being *T. Chebulla*, *T. bellerica* and *T. citrina*. The fruits on which the following analysis was performed were examined by Mr. E. M. Holmes, who thinks they were derived from *Perminalia Chebula* and *citrina*. Myrabolans have for a long time been used in this country as a tanning material, and several species, particularly *T. bellerica* and *Chebula*, are used as medicines in the East. Full descriptions of the uses of the fruits have been given by Hooper, Dymock and others, and an analysis of the fruits of *T. bellerica* has lately been published.

It has been suggested that commercial myrabolams would form a useful addition to our list of astringent drugs, and it is with a view of ascertaining what bodies, besides tannins, are present, and what advantages this drug possesses, if any, over other astringent substances, that this analysis has been attempted.

Dr. Apery (of Constantinople) has very strongly recommended the use of myrbolams in the treatment of dysentery and diarrhœa, and also considers the drug to be cholagogue. He describes its effects in the treatment of dysentery as very remarkable. L'Union Pharmaceutique, 1887.)

The same author also gives some details of analysis (*Journal of Pharmacie et Chemie*, 1888, p. 140), and states that the different varieties of fruits are all derived from the same plant, but at different stages of maturity.

ANALYSIS.

*Estimation of moisture.*—5·032 grams of the finely powdered and well mixed drug, dried on a water bath, lost ·355 gram. = 7 05 per cent. moisture.

*Estimation of ash.*—2 517 grams. of powder yielded ·058 gram. = 2·30 per cent. ash.

The ash was exhausted with water and hydrochloric acid successively, with the following result:

| | Per cent. |
|---|---|
| Soluble in water | 1·202 |
| Soluble in HCl | ·872 |
| Insoluble residue | ·230 |
| | 2·304 |

The portion soluble in water (the solution was strongly alkaline) contained carbonate of potassium and chloride of sodium. That soluble in hydrochloric acid contained oxide of iron and phosphates of calcium and magnesium. The insuluble portion was not further examined; it was probably silica. The ash had a slightly green appearance, but the presence of manganese was not confirmed.

The amount of ash is unusual, since Allen ("Commercial Organic Analysis," vol. iii., part I., p. 106) gives the proportion of ash usually yielded by commercial myrabolams as about 10 per cent. After four estimations, however, it was decided that the figures given are correct for the sample under consideration.

One hundred grammes of the drug, reduced to very fine powder, were packed in a percolator, and extracted successively with petroleum ether, ethylic ether, alcohol (sp. gr. ·810) and distilled water, the powder being dried in the air between each extraction. Four extracts were thus obtained, which were examined as follows:—

*Petroleum-ether extract.*—Colour, light yellow; a drop evaporated on a piece of blue paper left a slight oily stain. A few c.c. evaporated in a watch glass in the air left no smell.

Half the total extract, evaporated on a water-bath until the weight was constant, yielded ·256 grams. = ·510 per cent. of a yellow semi-solid residue, having, when warm, a strong fatty smell. This was treated with cold absolute alcohol, when ·241 grams. dissolved.

The alcoholic solution was distinctly acid to litmus and phenolphthalein. An attempt was made to titrate it with $\frac{N}{20}$ alcoholic soda, owing to an unlucky accident, which occasioned some loss, the estimation was not complete. The quantity required would not have been less than 20 c.c.

The residue was soluble in chloroform and appeared to be wax.

Petroleum-ether extract contained:—

| | Per cent. |
|---|---|
| Soluble in cold alcohol (partly free fatty acid) | ·482 |
| Soluble in chloroform (wax) | ·028 |
| | ·510 |

*Ethereal extract* (1,300 c.c.)—Colour, light yellow. Some of the ether used, believed to be absolute, was subsequently found to contain a little alcohol and water. The ether was therefore distilled off, the residual extract dried under sulphuric acid and treated with ether (of sp gr. 719), the portion insoluble in ether being dissolved in alcohol and added to the alcoholic extract. This ethereal extract still contained tannin, and it was found by direct experiment that the tannin present in the drug was slightly soluble in ether of sp. gr. ·719. Half this ethereal extract was distilled, and the residue, which had the peculiar smell of powdered myrabolams, dried until the weight was constant. It weighed 3·165 = 6·33 per cent. It was treated successively with distilled water and alcohol.

| | Per cent. |
|---|---|
| A. Soluble in water | 4·04 |
| B. Soluble in alcohol | 1·32 |
| C. Insoluble in alcohol and water, soluble in ether | ·97 |

*The aqueous solution*, A (200 c.c.) was of a light brown colour, and evidently contained tannin. On standing a few hours a white deposit fell; this was filtered off from a portion of the liquid and examined: It appeared to be gallic acid.

Ten c.c. of the solution, after re-dissolving the deposit by heat, were taken, and tannin precipitated by solution of gelatine, avoiding excess; the mixture was filtered, and the filtrate well washed with acetic ether. The ethereal solution separated, evaporated, and the residue dried, weighed ·056 gram. = 2·24 per cent. gallic acid.

The aqueous solution from this operation was examined, but nothing was found except a little tannin. A portion of the solution was treated with lead acetate, filtered, excess of lead removed with sulphuretted hydrogen, and the acetic acid got rid of by evaporation. Nothing but a little tannin appeared to be present in the solution.

*Alcoholic solution*, B (100 c.c.)—This was of a greenish colour, and gave evidence of containing gallic acid.

Twenty c.c. were evaporated, and the residue exhausted with boiling water, which dissolved ·078 gram. = ·78 per cent. soluble in hot water. This appeared to consist entirely of gallic acid.

The residue, ·54 per cent., consisted of a soft green resin. This substance is, presumably, the "myrabolamine" of Dr. Apery.

The residue C, insoluble in alcohol and water = ·97 per cent. (by difference), was re-dissolved in ether, and the solution again evaporated. It was of a brown colour, and had the character of an indifferent resin. All the solutions mentioned above were examined for alkaloids, bitter principle, glucoside, or sugar, without result.

The ethereal extract contained:—

| | Per cent. |
|---|---|
| Gallic acid | 3·02 |
| Tannins | 1·80 |
| Green resin, soluble in alcohol | ·54 |
| Brown resin, soluble in ether | ·97 |
| | 6·33 |

*Alcoholic extract* (1,500 c.c.).—This was of a dark brown colour, and deposited slightly on standing.

Fifteen c.c. evaporated, and the residue dried until the weight was constant, weighed ·251 gram. = 25·1 per cent. matter soluble in alcohol.

One hundred and fifty c.c. of the alcoholic extract were taken and evaporated at a low temperature (below 80 C.) until all the alcohol was driven off, the residue filtered, and the filtrate made up with washings to 150 c.c.

Fifteen c.c. of this solution evaporated, and the residue dried, weighed ·231 gram. = 23·1 per cent. soluble in water.

*Examination for tannin.*—Fifteen c.c. of the aqueous solution were precipitated with acetate of lead; the precipitate rapidly wasted and dried weighed ·336 grms. The precipitate incinerated and heated in the blowpipe flame until the weight was constant, weighed ·119 grams = 20·7 per cent. matter precipitated by acetate of lead.

Fifteen c.c. of the aqueous solution, precipitated in the same manner with acetate of copper, gave a precipitate weighing ·249 grams, and a residue after heating, of ·061 grams. = 18 8 per cent. tannin, etc., precipitated by acetate of copper.

The matter (1 9 per cent.) precipitated by lead acetate, but not by copper acetate, is thought to contain a bitter principle, and requires further investigation.

Myrabolams, as is well known, contain both ellayo and gallo-tannic acids. Much work has been done on the former by Loëwe and others.

The percentage of tannins found in the sample of myrabolams under consideration (20 6 per cent.) is low, since Allen and others give the average proportion of tannin in myrobolams as from 20 to 40 per cent. The figures represent the mean of four estimations.

*Estimation of glucose.*—The filtrate left from the precipitation by lead reduced Fehling's solution (after removal of the excess of lead acetate from the solution). On estimation, 1 c.c of Fehling's solution was decomposed by 66 c.c. of the filtrate = 1·13 per cent. glucose.

*Estimation of saccharose.*—A portion of the filtrate was boiled with 2 per cent. of hydrochloric acid for half an hour, and the solution, estimated by Fehling's reagent, = 1·25 saccharose and other carbohydrates.

The residue, insoluble in water, from the alcoholic extract, was treated with dilute ammonia (1 in 50) as long as anything was removed; the filtrate rendered slightly acid with acetic acid, evaporated, washed and dried, weighed ·086 gram. = ·86 per cent. phlobaphene.

* Abstract of a Paper read before the Edinburgh Pharm. Soc.

The washings from this operation, evaporated, left a dark brown residue, weighing ·035 gram. It was freely soluble in water, gave no precipitate with gelatine, had no taste, and seemed to be a colouring matter.

The residue from the treatment with ammonia was of a pale green colour; it weighed 071 gram. = ·71 per cent. It was insoluble in ether, alcohol, or chloroform, freely soluble in dilute caustic soda, the solution being a dark greenish brown colour.

*Aqueous extract* (1,500 c.c.).—This was of a very dark brown colour. Fifteen c.c., evaporated and dried, weighed ·051 gram. = 5·1 per cent. of matter soluble in water.

# Legal Intelligence.

## HIGH COURT OF JUSTICE.

### CHANCERY DIVISION.

(*Before Mr. Justice Kekewich*)

THE RUABON BRICK AND TERRACOTTA COMPANY, LIMITED, v. THE GREAT WESTERN RAILWAY COMPANY.

Mr. Warrington, Q.C., Mr. Hopkinson, Q.C., and Mr. F. Dodd, Q.C. appeared for the plaintiffs; and Mr. Cripps, Q.C., and Mr. Medd for the defendants.

This case involved a novel question of importance affecting the rights of

MINERAL MINERS AND MERCHANTS.

The point of contention was, whether owners of minerals under a railway can, in effect, remove the sleepers and rails in order to work the minerals, provided it is the custom of the district and the proper mode of working to work the minerals, such as china clay, by pits excavated from the surface. The facts were shortly these. The plaintiffs are the owners of a valuable bed of clay adjacent to and beneath the defendants' Bryn-yr-Owen Branch, a short mineral railway running out of the Shrewsbury and Chester main line at Ruabon. By a deed of December 30, 1890, the plaintiffs conveyed to the defendants the surface of a portion of the land under which the clay lay, and the branch line passed over the line so conveyed. According to the custom of the district the clay was worked by pits from the surface, and for some years prior to January last the plaintiffs had worked a pit immediately to the west of the railway. On the 18th of that month they gave the defendants notice, under section 78 of the Railways Clauses Consolidation Act, 1845, of their intention to work the clay under the railway to the east of the pit. In the early part of September, 1891, the plaintiffs commenced working their pit in the direction of the railway in accordance with their notice, and subsequently they commenced removing the surface soil, or "fey," and the ballast on the defendants land, and for this purpose grubbed up the defendants' boundary fence and proceeded to lay a tramway on the land. The defendants thereupon, fearing the destruction of their line, took measures for stopping the plaintiffs' proceedings, and the plaintiffs then retorted by bringing this action and serving notice of motion for an injunction to restrain the defendants from interfering with them in getting their clay from under the railway or in removing the "fey," or surface soil, or other substance lying above the same, or from removing the tramway. The motion now came on to be heard, by consent, as the trial of the action. The question turned on the effect of sections 77 and 79 of the Railways Clauses Consolidation Act, 1845. Section 77 enacts that a railway company shall not be entitled to minerals under any land purchased by them unless such minerals are expressly purchased; and that all mines shall be deemed to be excepted out of the conveyance of such lands. Section 79 provides that if the company are unwilling, after notice under section 78, to purchase the mines, the owner may work them, "so that the same be done in a manner proper and necessary for the beneficial working thereof, and according to the usual manner of working such mines in the district where the same shall be situate." In the present case the "fey," or surface soil, lying immediately over the clay, as well as the clay itself, belonged to the plaintiffs, and it was the custom of the district, as was admitted by the defendants, to work the clay by excavating the surface; but the question was whether the plaintiffs, even though working according to the custom of the district, were entitled to enter for the purpose on the defendants' land, and virtually destroy the railway.

Mr. Justice Kekewich said it had been argued that the precise point which he was now called on to decide had not been decided in any previous case; and, if that were so, he should take time for his judgment, because, obviously, it was a question of vast importance, not only to the parties engaged in the present litigation, but also to all parties concerned with minerals under railways or canals—that is, to landowners who had parted with their interest in the surface to railway or canal companies. But, in his opinion, the question had been disposed of in previous cases, and all he could do was to apply those cases to the present. The question was whether the plaintiffs could work this clay.

THE RAILWAY COMPANY'S ARGUMENT.

The company said, "Work the clay if you can, but you have no right to come on our land; you have conveyed the surface to us and we have used it for our railway, which was the object of the conveyance; and it was not in the contemplation of the parties, and you are not entitled, to break down our hedges, come on our line, take up the ballast, remove the sleepers and fixings, and the permanent way which rests on them. That is, in short, a trespass; it is not using your property, but is using ours, and you are not entitled to take ours." That was the position. Dealing as they were with a railway company, there was no occasion for considering what was implied in the reservation of their particular minerals, because the rights of the railway company, on the one hand, and the landowner, on the other, were all defined by the Railways Clauses Consolidation Act, 1845, and by the *fasciculus* of clauses which commenced with section 77; the one on which the present question mainly depended was section 79. The landowner, who had reserved a "vertical *stratum*," as it had been called, either by conveyance or express words, was entitled to work his mines, after certain notices, "in a manner proper and necessary for the beneficial working thereof, and according to the usual manner of working such mines in the district where the same shall be situate." It had not been denied that, according to the usual manner of working in this district in which the clay was situate, it ought to be worked from the surface, and that had not really been argued before him. Therefore, if the plaintiffs were to work according to the custom of the country—according to the usual manner of working—they must work from the surface. That did not mean, however, that they were not to work it in any other way. The railway company could not complain of their working in that way. It being conceded or proved that this was the ordinary manner of working, and that it would be a departure from the ordinary manner of working to approach the clay from any other direction, was the landowner entitled to come upon the surface? If he was entitled to come upon the surface, the rest followed; it was not necessary to pause to inquire whether he might pull down hedges, remove sleepers, and so forth, because that would be incidental to the working from the surface. It was said by one side that this was a new point, and on the other that it depended on the Act of Parliament. He intended to decide it on the footing that it was not a new point, and that it rested on authority alone. The point certainly arose in the minds of the noble Lords who took part in the case of "Bennett *v.* Great Western Railway Company" (L.R., 2 H.L., 27), because their language showed it. His Lordship then discussed at length that and other cases, finally noticing "Midland Railway Company *v.* Miles" (33 Ch. D., 632), saying that he was greatly influenced by that case, Mr. Justice Stirling having, in his considered judgment, gone into the whole law and the construction of section 79, dealing especially with the observations of the noble Lords who decided "Bennett *v.* Great Western Railway Company." He (Mr. Justice Kekewich), looking at those observations, came to the conclusion that he had before him distinct language used in the House of Lords, possibly capable of interpretation other than that which had been given to it in other cases, but commented on by other judges whose decisions were binding on him; and, therefore, the plaintiffs were entitled to what they claimed—that is to say, to go on to the land which they had themselves parted with, and, within the limits provided by the Railways Clauses Act as to damage, compensation, and so forth, to work this clay from the surface. If improperly interrupted, the plaintiffs were entitled to damages for interference.

THE MINERAL MINERS' RIGHTS CONFIRMED.

There must, therefore, be a declaration that the plaintiffs were entitled to work the clay from the land conveyed by the deed of 1890, and for that purpose to enter on the land and remove any ballast, "fey," or soil lying or being above the said clay. There must also be an inquiry as to damages for the defendants' interference with such rights, and also an inquiry as to the damages upon an undertaking given by the defendants before the Vacation Judge to prevent soil falling into the plaintiffs' clay pit. The costs of the action must be borne by the unsuccessful party.

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PROPOSED NITRATE COMBINE.—The combination made to regulate the production of sodium nitrate which took place in July, 1892, seems likely to be followed by another proposal, which is well supported by influential parties. This is a proposal to combine the ninteen different nitrate companies into one large concern. The result of such a combination will, it is anticipated, be to reduce the price to the consumer, and also to stamp out many abuses which exist in the present system of working the nitrate fields. The basis on which the proposed amalgamation is to be made will be published shortly.

# Reports of Companies.

## THE ALUMINIUM COMPANY, LIMITED.

The annual ordinary general meeting of the Aluminium Company, Limited, was held on Tuesday last week at the City Terminus Hotel, Mr. Gerald W. Balfour, M.P., presiding. In moving the adoption of the report, the chairman reminded them of the difficulties and disappointments which had attended the past career of the company, and reminded them that when it first started its operations the price of aluminium was something like 60s. per pound. They then expected by means of their new processes to reduce the cost price to about 10s. and to be able to command the markets of the world at a selling price of about 20s. These expectations had been doomed to disappointment. At the present time aluminium sold for about one-fourth of what they had hoped to make it at, and, instead of selling at 60s., it could now be obtained at little more than 2s. per pound. Nevertheless, he did not think that the expectations formed at the start were altogether unreasonable. Hundreds of chemists had been working at the problem of making cheap aluminium, but for many years no important improvement had been made in the process of manufacture, their company being the first to make any real advance in this direction. Unfortunately, the advance made by the company was contemporaneous with the opening of what he might describe as an epoch in this particular industry, and, though year after year the company had continued further to improve its process, the electric processes of manufacture were still always ahead of it. The knowledge which the company had acquired of the property and its alloys had enabled it to do a certain amount of business in connection with the article, but the directors had long ago said farewell to any of the expectations which they at first indulged in of making large profits from its manufacture. In spite of the series of disastrous blows which had been inflicted on them, the directors nevertheless determined to persevere and, if possible, to save the sinking ship and to recover at least some portion of the capital invested by the shareholders. Although they were obliged to give up all hope of the particular branch of industry with which they started, they nevertheless thought they saw a chance of creating a new branch; and he was glad to state that the directors were now enabled to announce that their perseverance had been rewarded. It was true that the trading account still exhibited an adverse balance, but it was a comparatively small one, and during the half-year from January to June the works at Oldbury showed a profit of between £2,000. and £3,000. It must be remembered, too, that this profit has been earned in the face, not merely of a large reduction in the selling price of sodium, but also with a capacity of output of only one-third of what the company now had at its command. With three times the capacity of output they ought to be able to earn more than three times the profit, for while the returns would be multiplied by three, so long as the triple plant was in full operation, the expenses of working would not increase in like proportion, and some of them—for instance, the expenses of management—would remain practically stationary. Of course, all depended on whether they would have a demand which would tax the full resources of their triple plant. He was not able to guarantee that that would be the case, but they had at the present time orders actually in hand which would keep the whole of their plant in operation for over three months from the present time. It was true that they had been mistaken in their hopes regarding aluminium, but they had reason to believe, in the present case, that no one was likely to invent a process better than or as good as that held by the company. At the same time he would be the last to say that the progress of invention in this particular branch of industry had come to an end. They were, however, not only protected by a variety of patents which mutually strengthened each other, but they had also effected running contracts with the principal consumers of their products, under which the consumers were bound to purchase exclusively from the company in return for advantages which the latter could give. He therefore thought that, while it was impossible to have an absolute safeguard against competition, they possessed the best safeguard anyone could have—namely, that competition was not likely to pay. With regard to the new electrochemical process referred to in the report, for which the company was indebted to the ingenuity and inventive skill of its managing director, Mr. Hamilton Castner, they had not stated exactly what the nature of the invention was, but had merely said that it was connected with one of the most important chemical industries of the country, and that they believed it was likely to be of very great value. Possibly, some of them might criticise the reticence which the directors had observed on this point, but he would appeal to the shareholders not to press them too much respecting it. They were not the only persons who had been working at the particular problem which, by the invention in question, they believed had been completely and finally solved. The board, therefore, thought that it was not to the interests of the shareholders that the nature of the process should be revealed until they were in a position to exhibit it actually at work upon a commercial scale. No doubt the directors had already filed specifications in the various countries, but these preliminary specifications remained secret for a considerable period, and it was usually considered wise to delay the publication of the final specification until the last possible moment. Meantime they would have the experience of working the process on a commercial scale, and doubtless they would be able in minor points to introduce improvements, which it might probably be desirable ultimately to embody in fresh patents, supplementing and strengthening those which the company already possessed. The directors had given the best proof of their confidence in the value of the invention and the future success of the company by offering to be responsible for the whole of the new issue of £12,000. B debentures. It would, however, be gratifying to the board if the shareholders also subscribed for them. The question of writing down the capital was still receiving their careful consideration. Sir Henry Roscoe, M.P., in seconding the motion, expressed his belief in the prospects of the company, not only because they had what they believed to be an important new process, but because they had already almost a certainty of doing a very good trade. The motion was unanimously adopted.

## THE LAUTARO NITRATE COMPANY, LIMITED.

The fourth annual general meeting of the Lautaro Nitrate Company, Limited, was held on Tuesday last week at Winchester-house, Mr. Henry A. Rau presiding. In moving the adoption of the report, the chairman said the profit and loss account on December 31st last, as finally settled, and after a prudent valuation of consumable stocks and making adequate provision for bad and doubtful debts, showed that there remained a balance of £14,423. The gross profits of this company and of the Santa Luisa Nitrate Company (now amalgamated with it) for the year 1891 were roughly estimated at £54,500. Unfortunately the telegram that indicated such results was misleading, and the real gross profits shown by the accounts when they came forward were only about £42,300, and this had again to be further reduced by £11,900. in order to correct certain discrepancies that were found to exist in the coast accounts. The final result on the coast for the year 1891 was £30,400., of which £14,423. net belonged to the Lautaro Company. The board had decided, after careful consideration, to place £11,750. to depreciation account, reducing the net profits for the year 1891 to £2,673., which, added to the amount brought forward on December 31, 1890, £16,099., made a total to the credit of profit and loss account on December 31st, 1891, of £18,772. He admitted that this was a very disappointing result, but the shareholders must bear in mind that the year 1891 was the year of the civil war in Chili. He was glad to say that they were already feeling the effects of the economies that had been introduced, and he believed that those economies would be of a permanent character. As to their titles, one of the concessions had been satisfactorily settled, and it was believed that before long the other would be in perfect order. As to their floating debt, it was difficult to determine the exact amount at any given date; but since 1890, when it stood at the highest figure, it had been reduced, and it would continue to decrease. It was intended to remodel the articles of association and to submit them to the shareholders for their approval. Mr. J. M. Lowe seconded the motion, which was carried after some discussion, in the course of which the chairman, in reply to a question, said that the results for the current year were more satisfactory, though he did not care to quote any figures for fear they might turn out misleading.

## THE SANTA ELENA NITRATE COMPANY, LIMITED.

The third annual general meeting of the Santa Elena Nitrate Company, Limited, was held on Friday, 11th inst., at Winchester-house. Mr. A. R. Robertson presided, and, in moving the adoption of the report, stated that under the nitrate combination their working during the past year had been reduced to seven months. They had made 209,000 quintals of nitrate, on which there had been a profit of £11,184., as compared with 234,000 quintals in the previous year. In 1891, however, the larger number of quintals realized only £10,000. They were, therefore, now accomplishing what they had always aimed at—to make less nitrate and more money. In the previous year the rate of exchange was in their favour, but this year it had been against them. The most serious matter, however, against which they had had to contend had been the heavy fall in the price of nitrate. At their meeting last December the price was £9. 10s. a ton, and there were indications that it would advance to £10., but unforseen circumstances had had the effect of reducing the price to £7. 15s. a ton. The result had been that on the quantity of nitrate which they had had to sell they were between £5,000. and £6,000. to the bad, that being on this head alone. Considering all the circumstances, he did not think the report could be regarded as unsatisfactory. They had paid a dividend of 5 per cent., but they regretted that they were unable now to make a further distribution. Their prospects were, however, sufficiently

encouraging to justify the belief that before long they would be in a position to declare an interim dividend. Mr. George Bush seconded the motion, which was adopted.

## POLLUTION OF THE RIVER RIBBLE.

A SPECIAL meeting of the Ribble Watershed Joint Committee of the Lancashire County Council was held in the County Hall, Preston, on Monday last, Alderman Whiteley, of Blackburn, the vice-chairman, presiding. The clerk (Mr. Hulton) explained the principal provisions of the Mersey and Irwell Act of last session, indicating the advantages the Act gave over the general Rivers Pollution Act of 1876. Amongst its improvements was a provision enabling them to take proceedings in a court of summary jurisdiction instead of having to go to a county court. This would save considerable time and expense. In the Mersey and Irwell districts the operation of the Act had already been found to be beneficial, and the President of the Local Government Board recently recommended a deputation from the West Riding of Yorkshire to go in for a similar local Act. In answer to a question the clerk stated that probably the whole cost of promoting a Bill, if unopposed, would be about £700. The Mersey and Irwell Act was stoutly opposed at every point, and its cost would probably be £2,500.

PROPOSED SPECIAL ACT.

Colonel Starkie moved: "That application be made to Parliament for powers similar to those given by the Mersey and Irwell Act." Mr. T. Fair (Lytham) seconded the motion, which was supported by the Rev. R. C. Fletcher (Tarleton). Mr. T. Lightbown (Darwen) said there was a special reason why the Mersey and Irwell Committee should have special powers, inasmuch as the Ship Canal might have otherwise been rendered perfectly useless. There was no such urgent necessity in this case. He moved an amendment to the effect that the consideration of the question be postponed, and that in the meantime they should urge on the Government the necessity of bringing in a general bill to embody such powers, applicable to the whole country. This amendment was seconded by Mr. R. C. Assheton (Clitheroe), and supported by Alderman T. Burrows (Burnley). On the question being put to the vote the amendment was carried by five votes to three.

## NOTICES.

### LONDON AGENTS.

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H. J. N. (Jersey)—We have not heard anything further as yet.
C. M.—We shall be glad to hear you have received it all right.
P. and Co.—The matter has received our attention.

## Trade Notes.

Iodine Soap.—In order to prepare a soap containing iodine it has been suggested to first iodise the fat or fatty matter by heating it with iodine, and then saponifying in the usual way.

Change of Address.—We learn that Bell's Asbestos Company (Limited) have removed to their new works and offices in the building erected by them in Southwark-street, which is known as "Southwark-bridge-house."

Protecting Iron from Rust.—A patent has recently been taken out for applying in a new way the principle of coating iron with magnetic oxide to prevent rusting. The process adopted consists in coating the article by electrodeposition or otherwise with a metal or alloy which volatilizes about 1000° C., and then heating to this temperature in a furnace. The coating metal volatilizes, and a layer of tri-ferric tetra-oxide forms on the article.

Messrs. R. W. Greef and Co.—We are pleased to note that this firm have been appointed agents for a new patented mordant for dyers and printers. This mordant is called fluoride of chrome. It is harmless to the fabric, is readily soluble in water, either hot or cold. Over chroming is avoided. The mordant is guaranteed to contain 42% of chromic oxide, and to be free from iron. Further particulars can be obtained by applying to 29, Mincing-lane, E.C.

Self-Lubricating Composition.—A composition, which is designed for use with bearings, commutator brushes, projectile covers, may, it is stated, be prepared by mixing plumbago in excess, with wood, or other vegetable fibre. The materials are mixed with water, and the plastic mixture moulded under pressure. The mould is so arranged that the water in escaping tends to set the fibres on end with regard to the bearing surface. When moulded the article is dried and impregnated with linseed oil, and the oil finally hardened by the application of heat. The process is patented.

Treating Iron Waste Liquors.—A process has recently been devised for utilising the waste liquors from tin plate and galvanising works, which contain chloride and sulphate of iron. The process, which has been patented, consists in boiling the liquors with a mixture of alkali waste and one-tenth its weight in lime. The precipitated iron sulphide thus obtained is calcined in a furnace, whereby sulphurous acid, which may subsequently be converted into sulphuric acid, is formed, while iron oxide for the preparation of pigments is left.

Recovering Zinc Salts.—The waste liquors from the extraction of copper by the wet process, which contain considerable quantities of zinc chloride and iron and other zinc salts, may be treated, according to a recent patent, by first removing the greater part of the iron with lime and then throwing down the zinc salts by means of a mixture prepared by grinding up and boiling alkali waste with one-tenth its weight of lime and one-twentieth its weight of soda. The resulting zinc and iron sulphides may be dried and smelted, used as a pigment, or calcined in an ordinary furnace, with the evolution of sulphurous acid (which may be utilised in the manufacture of sulphuric acid), while the residue in the furnace is smelted to obtain metallic zinc.

Purifying Black Lead.—The following are four processes which have recently been patented for effecting the purification of black lead with a view to removing iron and other impurities and obtaining the resulting product in a fine state of division:—(*a*) Pulverised black lead is moistened with concentrated nitric or sulphuric acid, or both. It is next washed till the wash-water is free from acid, and then calcined. (*b*) The black lead may be heated with a solution of bichromate or permanganate and acid, and subsequently calcined. (*c*) Brodie's process may be employed by substituting nitric for sulphuric acid. (*d*) The black lead is heated with concentrated nitric or sulphuric acid, scooped out, washed and calcined. To obtain a finer product the black lead obtained at the end of these processes can, if desired, be thrown into water, stirred, scooped off, and dried.

## THE ADULTERATION OF GUM ARABIC.

ABOUT a year ago it was noticed that the extensive falsification to which gum arabic was being very subjected owing to the disturbances in inner Africa, have made good gum rare and expensive. In consequence of this scarcity other substances are introduced from Australia, South America, etc., as substitutes for gum arabic, but none of them is equal to the genuine Soudan gum.

A. Jacksch in a paper on this subject, states that inferior materials mixed with gum Gheziri are coming into Germany in large quantities, and being sold as "gum in granulo," and that many of the best firms have been deceived.

It is impossible to recognize this imposition by simply dissolving the substance, for the gelatinous particles being very fine are suspended in

solution and remain invisible, but the adulteration can easily be detected as follows :—

Some of the suspec ed sample is mixed with ten times its weight of hot water, and then allowed to stand for three or four hours, stirring the mixture occasionally. The insoluble matter will settle down, and then about half of the liquid should be poured off, and the same quantity of cold water added to make up the original bulk, which is then stirred, and again set to stand, and this repeated twice.

## EXPORTS AND IMPORTS FOR OCTOBER.

THE Board of Trade returns for last month are of an unfavourable character. In chemicals the only increase in the imports is in nitrate of sodium, while the exports are either lower or stationary.

The following is a comparison of the exports and imports of certain articles during the past month with the same month last year :—

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

| | | Quantities. 1891. | 1892. |
|---|---|---|---|
| Margarine | cwt. | 104,281 | 119,950 |
| Copper ore and regulus | tons | 16,995 | 16,922 |
| Hides—dry and wet | cwt. | 89,950 | 69,410 |
| Sodium nitrate | ,, | 107,304 | 139,143 |
| Tin | ,, | 39,253 | 46,162 |

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

| | | Quantities. 1891. | 1892. |
|---|---|---|---|
| Alkali | cwt. | 664,721 | 640,884 |
| Cement | tons | 46,441 | 43,544 |
| Copper—all kinds | cwt. | 123,866 | 131,205 |
| Coal and coke | tons | 2,652,579 | 2,894,283 |
| Iron and steel | ,, | 287,685 | 256,507 |
| Chemical manures | ,, | 25,551 | 24,483 |
| Oils—seed | ,, | 6,008 | 6,043 |
| Salt | ,, | 65,755 | 47,591 |

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

Benzol remains in much the same condition as reported last week, 90's being worth 1s. 6½d. to 1s. 7d., and 50/90's about 1s. 3d. ; other tar products remain unchanged, with the singular exception of Anthracene. It is satisfactory to see that the action taken by tar distillers is already bearing fruit, many makes which a few weeks ago could have been bought at very low prices, are now practically out of the market, though it appears that 8d. or even 9d. can be obtained for 30% B quality, and it is hardly possible to name a price for 30% A. If tar distillers only hold out long enough, they are bound to secure higher prices.

The sulphate of ammonia market is now increasing in firmness, Beckton being nominally £10 2s. 6d. and perhaps higher. London outside makes are variously quoted at £10. 1s. 3d. to £10. 2s. 6d., though it is very probable that the higher figure, and even more, will have to be paid before the end of the month. £10. 2s. 6d. may be considered spot price for both Hull and Leith, although it is reported that several sales have taken place at £10. 1s. 3d. The tendency to increasing values will no doubt make itself felt more keenly before the end of the month.

## REPORT ON MANURE MATERIAL.

The market has been quiet throughout the week, and prices do not show any material deviation from those of our last report.

Florida phosphate rock, 75 80%, continues to offer freely at 8¼d. per unit c i.f. to U.K., early and forward shipment, but buyers will not give the price, and 8d. is probably nearest value. Peace River rock offers at 7d. per unit without finding buyers, and Bull River may be had at 6½d. per unit. The value of River Plate bone ash is nominal, no transactions having been reported. We quote value about £3. on 70% nett Hamburg terms. There are still sellers of River Plate bone cargoes afloat at £4. 5s., delivered good to U.K port, but this price is above buyers' idea of value, and £4. 2s. 6d. would now probably have to be taken. There have been sales of crushed Kurrachee bones on spot and afloat at £4. per ton ex quay Liverpool. It is reported that large sales of Bombay bone meal for shipment have been made at £4. 5s. per ton ex quay Liverpool and Glasgow, but exact particulars do not transpire. Charring bones continue to be enquired for at Liverpool, and good clean parcels would fetch £4. 2s. 6d. to £4. 5s The value of common grinding bones is probably £3. 15s. to £3. 17s. 6d. ex quay Liverpool.

There has been less activity in the market for nitrate of soda, but prices last reported are maintained. On spot inferior quality offers at 8s. 10½d. per cwt., and good to refined 9s. to 9s. 3d Due cargoes are worth 9s. ¾d. to 9s. 1½d., according to size and west coast test, ordinary quality, and October-November shipments about 9s. 4½d. per cwt.

There is a moderate enquiry for dried blood, and 8s. 9d. per unit, f.o.r. at works, is now required for home prepared. There is no River Plate in first hands.

## THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron quiet. Scotch warrants closed at 41s. 11d. cash. Middlesbrough 37s. 4d. cash, and Hematite 46s. 9d. cash. Copper steady: Chili bars, G.O.B.'s and G M.B.'s closed at £46. 12s. 6d. cash, and £47. 2s. 6d. to £47. 10s. three months. Tin steady. Straits closed at £94. 5s. to £94. 12s. 6d. cash, and £94. 5s. to £94. 15s. three months. Australian, £94 12s. 6d. cash. English ingots, £97. 10s. Lead firmer: Spanish, £10. 5s. English, £10. 7s. 6d. to £10. 10s. Silesian spelter: Ordinary, £18 15s. Quicksilver firmer: First hands, £6. 10s., second hands, £6. 6s. 6d. *Copper shares* firm ; Cape, 1⅝ to 1¾ ; Copiapo, 2⅛ to 2⅜ ; Libiola, 3⅛ to 3⅜ ; Mason and Barry, $3\frac{5}{16}$ to $3\frac{5}{16}$ ; Rio Tinto, $6\frac{7}{16}$ to $6\frac{9}{16}$ ; Tharsis, $4\frac{13}{16}$ to $4\frac{13}{16}$ ; Namaqua, ⅝ to ¾ ; Panulcillo, ⅜ to ½.

WOLVERHAMPTON, WEDNESDAY.—The demand for pig iron is small but steady. Derbyshire pig, 46s. ; Northamptons, 45s to 46s.; Lincolns, 48s. ; Staffordshire cinder pigs, 36s. 6d. upwards ; best, 60s. Better enquiry for sheets and bars. Works fairly active. Sheets, doubles, £7. 5s to £7. 7s. 6d. ; lattens, £8. ; common bars, £5 15s ; merchant bars, £6 5s. to £6s. 10s. Plates, £8. to £10.

GLASGOW, WEDNESDAY.—Market easier, with good business. Scotch done at 42s. and 41s. 11½d. cash ; closing with buyers at 41s. 11d. cash, and 42s. one month ; sellers ask ½d. and 1d. more respectively. Middlesbrough closes with buyers at 37s. 4½d. cash ; sellers ask 37s. 10½d. Hematite closes with buyers at 46s. 9d. cash ; sellers ask 46s. 11d.

## MISCELLANEOUS CHEMICAL MARKET.

The demand in all branches of the alkali trade continues fairly active, and considerable business has been done for deliveries over next year. Bleaching powder is in good request, and price remains steady at £7. 10s. nett, f.o.r. maker's works, Lancashire and Tyne districts. For contracts over 1893, £7. 5s. per ton, at which figure considerable business has been done. Caustic soda is without variation in price for spot delivery, quotations being: F.o.b. Tyne, 77%, £11. 5s. ; f.o.b. Liverpool, 74%, £11. 5s. ; 70%, £10 5s. ; 60%, £9. 2s 6d. ; cream, 60%, £8. 17s 6d , in 10 ton lots and upwards. Soda ash is steady for spot delivery with fair demand, but prices are more varied for 1893 contracts, the tendency being rather in buyers' favour. Spot values are for 48 58% from $1\frac{5}{16}$d to 1⅜d. per degree f.o b Soda crystals are in steady demand and without change in value. Chlorate of potash has had a strong advance in price, spot quotations being 8½d. per lb. Chlorate of soda 8½d. to 9d. Recovered sulphur in moderate request at £4 12s 6d. f.o.r. makers' works. For muriatic acid price remains steady, and in vitriol likewise there is no material change in value. Acetates of lime are rather firmer for spot delivery, and an advance of fully 10s. per ton is quoted for forward deliveries both on brown and grey. Acetate of soda and other acetates are firmly maintained in price. Sulphate of copper without improvement. White powdered arsenic is in good demand and steady in value at £12. 10s. nett, f.o.r. Garston and other usual points of delivery. Prices of potash, caustic and carbonate, are on the whole steady, and a fair amount of business has been done for forward delivery. Prussiate of potash continues steady at 10d. Bichromates without change. Sulphocyanides are very quiet. Carbolic acid crystals are again at the lowest point touched, but liquid carbolic acids are still firm, and there is a fair amount of business doing for forward delivery. Aniline oil and salt are without improvement. Oxalic acid is rather firmer at 3¼d. The general demand for chemicals in all the manufacturing districts is still unsatisfactory.

## LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

LS:—Palm oil is very firm, sales are good. Prices have hardened g the week, yet to-day there is a fair business doing in Lagos at 10s., Bonny £21. 10s., and heavy oils at £21. per ton, all transit continues firm, but the market is quiet, especially for spot. Quota- are about the same, namely, £35. to £40 per tun. Linseed nues from 19s. 6d. to 20s. per cwt. in export casks, but sales have few, buyers evidently waiting for an easing off in prices. Cotton- :—Liverpool refined is steady at 18s. 3d.; during the week 18s. quoted, but sellers are holding steadily at the former figure. ican: None offering. Castor oil is firm, considerable sales of seconds Calcutta have been made, ex quay, at 2¼d. to 2 5/16d. per ut to-day 2 7/16d. is value, there having been sales at that figure. pressure French is quoted 2⅝d. to 2 11/16d. per lb. Tallow: The et is strong, and values of both North and South American are on dvance 29s. per cwt being lowest quotation for South American. , common, continues at 4s. 3d per cwt. There is a fair demand, olders are very firm. Spirits of turpentine have advanced rapidly g the week up to 23s. 3d. per cwt., and are steady to-day at 23s leum is in good demand. American is quoted 5¼d. to 6¼d. ding to quality. Russian refined 4½d. to 4⅜d. per gallon. LOURS are unchanged. Ochres: Oxfordshire, common, £10., im, £12., best, £15.; Derbyshire, common, 40s., medium, best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., o 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. lead, red lead, and oxide of zinc unchanged. Venetian red, 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide n: Common, £6.; medium, £10.; finest, £20.

## THE LIVERPOOL MINERAL MARKET.

e market has well maintained its firmness. Manganese: Arrivals somewhat improved, but the whole has gone direct into consump- besides which, spot stocks, already very low, have been further y reduced, hence higher prices have been paid, both for spot and rd delivery, and still higher figures are now asked. Borate, 7d. .; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; nate, £12. 10s., steady. Magnesite (raw lump) quiet. Raw d £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand), ; lump 20s., seconds 16s., and thirds 12s. French chalk: als have improved, but prices are unaltered. "Angel White" l and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; uperfine, 105s. Barytes: Carbonate, best lump, in good demand, one offering; nuts, 70s. to 80s.; whilst finest white sulphate is nand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. . Pumicestone quiet. Iron ore flat, with little doing. Bilbao, and Cumberland easier. Santander and manganiferous quiet. ystone: Best quality continues in good demand, both for home export. No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. rs' earth continues quiet; best lump, 55s.; fine impalpable ground, "Emerald" ground, 80s. Scheelite, wolfram, tungstate of and tungsten metal in good demand, and prices are firm. me ore continues in good request, and prices are strong. Antimony steady at £12., and metal £43. to £44. Asbestos very firm. rs' lead ore, smalls, £10. 10s. to £11. Calamine strontia ate (celestine) quiet. Limespar steady, especially for English ifactured; old G.G.B. brand in demand at 50s. (ground). Fel- quiet. Fluorspar: Best quality scarce. Ferro-manganese in better nd. Plumbago: Spanish, £5.; best Ceylon lump at last quota- ; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. .; Blackwell's "Mineraline," £10. French sand, 20s. to 22s 6d. nd mica, £45. to £50. China clay steady, common, 18s. 6d.; medium, 22s. 6d. to 25s; best, 30s. to 35s. (at Runcorn). Bog oxide of iron) steady; finest quality 22s. to 23s.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

the whole the market is distinctly weaker, and with the exception further advance in chlorate of potash, there is no rise of price to amongst the standard chemicals. On the contrary, bleaching ler is very idle, and the quotation of last week is not fully main- d. Soda crystals stand nominally at the figure ruling of late; but ms a fact that this is now being shaded. Manufacturers by this consider themselves as into the lull which always more or less s the close of autumn from the opening months of the new year.

Shipments of sulphate of ammonia out of Leith last week were even larger than usual, no doubt in anticipation of the closing of the northern Continental ports. It weakened towards the end of last week, and was bought, in at least two instances, at £10.; but it is now held to have slightly bettered again, back to last week's quotation. Of the forward market there are no accounts here, which of course means that there is no movement just at present.

The mineral oil and paraffin markets show no new features, and quotations stand as at last writing. Gas oils (865°) continue in good, and even improving demand, but this, as a healthy sign, is an exception, and a solitary one.

Chief prices current are:—Soda crystals, £2. 15s. nett Tyne; alum in lump, £5. 10s., nett Glasgow; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; bleaching powder, £7. 5s. nett Tyne; saltcake, 35s.; borax, English refined, £30., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8¼d., less 5% Liverpool; nitrate of soda, 9s.; sulphate of ammonia, £10. to £10. 1s. 3d. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £15. less 5% Liverpool; paraffin scale (hard), 2d., and soft 2d. per lb.; paraffin wax, 120°, semi-refined, 2½d.; paraffin spirit (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower); ditto (lubricating), 865°, £3. to £3. 5s., 885°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were nil.

## TYNE CHEMICAL REPORT.

TUESDAY.

Chemical trade is quiet. Prices for prompt unaltered. Sulphur scarce at £5. and £5. 2s. 6d. per ton, f.o.b Tyne, net.

Bleaching powder, softs, £7. 10s. per ton nett; hards, £7. 15s. per ton; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £5. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £4. per ton, 140° Tw., £4. 7s. 6d. per ton; soda crystals, in casks, £2. 15s. per ton gross weight, in 2 cwt. bags, £2. 15s. per ton nett weight; chlorate of potash, firm at 9d. per lb. less 6%; pearl hardening, £3. 10s. per ton nett; pure white sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta crystals, £19. per ton; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s per ton; hydrate of barium, £11. per ton.

South Durham salt, unchanged at 10s. 1d. per ton f o b Tees.

Coals: Trade at the moment is rather quiet. Best Northumbrian steam 9s. 3d. to 9s. 6d. per ton. Small steam 3s. 9d. to 4s. per ton. Gas coals steady and in good demand, 7s. 6d. to 8s. per ton. Coke firm at 15s to 16s. per ton.

## New Companies.

**Croft's Indian Bone Meal Co., Ltd.**—CAPITAL £30,000. in £1. shares. The object of this company is to trade as mill owners, seed crushers, and general dealers in bones and sinews, etc. The subscribers to the memorandum of association are:—P. O Cornwell, 25, Crosby-buildings, E C; C. B. Boileau, Ealing; J. H. Huett, 25, Crosby-buildings, E C.; E. White, Seething-lane, E.C.; S. E Johnson, Mark-lane, E C.; H. Romney, Crouch End; A. S H. Jones, Mark-lane, E.C.

**The Kar-na Soap Syndicate, Ltd.**—CAPITAL £15,000. in £10. shares. This company has been formed with a view to carrying on the business of soap manufacturers hitherto carried on by Mr. Hadida, at Congleton. The subscribers to the memorandum of association are:—W. P. J Fawcus, 14, St. Ann's-square, Manchester; H. J. Owen, Manchester; G. Graham, Chorlton-cum-Hardy; W. A. Cartwright, Stoke-on-Trent; H. Hadida, Liverpool, merchant; J. B. Fowell, Salford, engineer; J. Loddey, Liverpool.

**London Mica Importers, Ltd.**—Capital £70,000. in £1. shares. This company has been formed to purchase and work mica mines, and to buy and sell mica and other minerals. The subscribers to the memorandum of association are:—S. Woodham, 82, Evelina-buildings, E.C., clerk; F. Harland, 12, Narford-road, N.E., shorthand writer; W. Brown, 121, Hungerford-road, N.; J. Davis, Croydon, accountant; J. Andrew, 15, Harrow-road, secretary; C. F. Richardson, Stroud Green, N.; A. H. Russell, Forest Hill, S.E.

**New Patent Bleaching and Washing Syndicate, Ltd.**—Capital £50,000. in £1. shares. The object of this company is to acquire and work certain patents connected with the cleaning and bleaching of vegetable and animal fibres, and to recover oil and fat therefrom as bye-products. The subscribers to the memorandum of association are:—W. T. Feldon, Forest Hill, surveyor; A. W. Read, 94, Cheapside, E.C.; W. Howard, 20, Bucklesbury, accountant; J. R. Pakeman, 70, King William-street, solicitor; W. Tomson, Mile-end, clothier; Ellis Parr, Isleworth, gentleman; A. Akend, Cheapside, restaurateur. 100 shares each.

**Rawson, Limited.**—Capital £12,000. in £1. shares. The object of this company is to take over and carry on the business of candle makers, hitherto carried on by Mr. Rawson, at Barton-on-Humber. The subscribers to the memorandum of association are:—E. Horhsey, Barton-on-Humber, P. Briggs, Barton-on-Humber, W. H. Appleby, Barton-on-Humber, 50 shares each; G. M. Robinson, Barton-on-Humber, W. H. Tanner, Barton-on-Humber, B. Barraclough, Barton-on-Humber, E. T. Breaker, Hull, clerk, 1 share each.

**Shackell, Edwards & Co., Ltd.**—Capital £50.000. in £10. shares. This company has been formed to carry on the business of printing ink manufacturers hitherto carried on by Messrs. Shackell, Edwards & Co., and also to trade as manufacturers, importers of and dealers in oils, paints, colours, varnishes, etc. The subscribers to the memorandum of association are:—Amelia Edwards, Honor Oak Park, widow; E. A. Edwards, Honor Oak Park, spinster; M. E. Edwards, West Hampstead, spinster; W. A. Edwards, West Hampstead, gentleman; G. C. A. Haslock, Fleet-street, E.C., printing ink manufacturer; F. B. Suvart, Cheapside, E.C., accountant; H. Andrews, Strand, W.C., solicitor.

# The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

### APPLICATIONS FOR LETTERS PATENT.

**Improvements in Beater Plates for Pulp Beaters.** W. H. Benson. 19,510. Oct. 31st.

**Manufacture of Grape Sugar.** B. Dukes. 19,535. Oct. 31st.

**Method of Carrying Petroleum.** B. Redwood and H. W. Lowick. 19,544. Oct. 31st.

**New Colouring Matters.** H. E. Newton. 19,557. Oct. 31st.

**Improvements in Distilling Apparatus.** A. Lappin. 19,558. Oct. 31

**Treatment of Sewage and other Polluted Waters, and Manufac Materials for use in such processes.** F. P. Candy. 19,587. Nov.

**Manufacture of Ice.** P. M. F. Laurent. 19,653. Nov. 1st.

**Manufacture of Pyroxiline for commercial uses.** F. Greening. Nov. 1st.

**Eliminating Sulphur and Phosphorus from Molten Iron or Steel.** Phillips. 19,727. Nov. 2nd.

**New Azo Colouring Matters.** H. E. Newton. 19,743. Nov. 2nd.

**New Oil Purifying Apparatus.** C. H. Freyer. 19,745. Nov. 2nd.

**Apparatus for the Manufacture of Water Gas.** A. G. Glasgow. Nov. 2nd.

**Improvements in Cyanide Process for Extracting Precious Metals Ores.** E. Hunt. 19,769. Nov. 3rd.

**Purifying Sewage and Trade Effluents.** W. Oldfield. 19,785. Nov. 3

**Vessels for containing Sulphur Dioxide.** A. Boake and F. G. A. R 19,789. Nov. 3rd.

**Pickling Iron Plates for Galvanising.** W. S. Rawson and Woodhou Rawson United, Ltd. 19,801. Nov. 3rd.

**Obtaining Ammonia, Chlorine, and Hydrochloric Acid from Ammo Chloride.** L. Mond. 19,812. Nov. 3rd.

**Improvements in making Cement or Mortar.** O. Boklen. 19,813. No

**New Red Colouring Matter.** O. Imray. 19,820. Nov. 3rd.

**Production of Black and Brown Colours.** J. Sniechowski. 19,826. No

**Apparatus for Purifying Water.** L. Archbutt and R. M. Deeley. Nov. 3rd.

**Recovering Gold and Silver, and utilising bye-products of Sulphi Antimony, Arsenic, Tin, Zinc, Lead and Copper.** H. S. Denny T. Garrick. 19,844. Nov. 3rd.

**Recovering Gold and Silver from their Ores.** H. S. Denny and Garrick. 19,845. Nov. 3.

**Portable Smoke Consuming Appliance for Furnaces.** R. Wallbank Sharples. 19,851. Nov. 4th.

**Improved Apparatus for Purifying Liquids discharged from Wor** Hanson. 19,866. Nov. 4th.

**Manufacture of Azo Colouring Matters.** Brooke, Simpson and Spiller and A. G. Green. 19,891. Nov. 4th.

**Manufacture of Materials for Filtering Liquids, etc.** H. H. Lake. Nov. 5th.

**Portable Freezing Machines.** J. O. Spong. 19,989. Nov. 5th.

# Gazette Notices.

### PARTNERSHIPS DISSOLVED.

F. L. Meadows and J. B. Read, under the style of Hill Bros. and Co., worth, chemical manufacturers and merchants.

J. Lomax and H. H. Lomax, under the style of J. Lomax and Son, Stockp and paper merchants.

### BANKRUPTCY ACTS, 1883 and 1890.

#### Receiving Orders.

Lassam, Thomas Henry, Uxbridge, oil and colourman.

Savory, William Rastrick, trading in co-partnership with T. Milnes, C. and R. Crowther, as Savory and Co., Brighouse, drysalter.

#### Adjudication.

Savory, William Rastrick, trading in co-partnership with T. Milnes, C. and R. Crowther, as Savory and Co., Brighouse, drysalter.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending November 5th.*

**Acetic Acid—**

| | | |
|---|---|---|
| Holland, | 18 pkgs. | A. & M. Zimmermann |
| ,, | 13 | Beresford & Co. |
| ,, | 5 | F. Stahlschmidt & Co. |
| ,, | 27 | T. H. Lee |

**Acetone—**

| | | |
|---|---|---|
| Holland, | 1 pkg. | Beresford & Co. |

**Alkali—**

| | | |
|---|---|---|
| France, | 100 c. | Arnati & Harrison |
| ,, | 202 | P. Hecker & Co. |

**Ammonium Carbonate—**

| | | |
|---|---|---|
| Germany, | 1 pkg. | H. Lambert |

**Antimony—**

| | | |
|---|---|---|
| Brisbane, | 23½ t. | Major & Field |
| N. Zealand, | 23 | James & Shakespeare |
| France, | 9 c. | F. Smith |
| Singapore, | 120 | Pillow, Jones, & Co. |
| France, | 8 | W. Grose & Co. |
| Portugal, | 50 | J. Bamber |
| Brisbane, | 4 | Union M. & A. Co. of Australia |

**Asbestos—**

| | | |
|---|---|---|
| Italy, | £150 | J. Knill & Co. |
| France, | 48 | Mory & Co. |

**Barytes—**

| | | |
|---|---|---|
| Belgium, | 42 cks. | J. B. Orr & Co. |
| ,, | 21 | S. H. Willoughby |
| ,, | 15 | T. Jordan & Co. |
| ,, | 2 | Brandram & Co. |
| ,, | 63 | W. Harrison & Co. |
| ,, | 46 | A. Zumbeck & Co. |
| ,, | 24 | S. Ward & Co. |
| Germany, | 19 | P. Jantzen |
| Belgium, | 43 | Hemingway & Co. |

**Bromine and Bromide of Iron—**

| | | |
|---|---|---|
| Holland, | 96 pkgs. | A. & M. Zimmermann |

**Caoutchouc—**

| | | |
|---|---|---|
| Zanzibar, | 3 c. | Smith, Sundius, & Co. |
| Portugal, | 206 | Dickson E. Recknell |
| E. Indies, | 88 | L. & I. D. Jt. Co. |
| ,, | 31 | G. Ward & Sons |
| Madagascar, | 47 | Procter Bros. |
| Greytown, | 12 | Mildred & Co. |
| Germany, | 268 | Procter Bros. |
| Mauritius, | 600 | Hammond & Co. |
| France, | 2 | Flageollet & Co. |
| Zanzibar, | 17 | L. & I. D. Jt. Co. |
| France, | 26 | L. & N. W. Ry. Co. |
| ,, | 25 | Arnati & Harrison |
| E. Indies, | 13 | Brown & Elmslie |

**Castor Oil—**

| | | |
|---|---|---|
| France, | 40 pkgs. | F. Boehm |
| ,, | 25 cks. | J. T. Morton |
| ,, | 35 | Lucas & Spencer's Wf., Ltd. |
| France, | 39 brls. | Beresford |
| Italy, | 5 cs. | L. & I. D. |
| ,, | 10 | R. Morrison |
| ,, | 46 | B. & N. Whve. C |
| Belgium, | 13 | L. & N. W. |
| ,, | 10 | Major |
| Italy, | 25 | A. Lanning |
| ,, | 5 | W. Baus |

**Caustic Potash—**

| | | |
|---|---|---|
| France, | 10 c. | J. |
| ,, | 65 | Pe |

**Chemicals** (*otherwise unde*

| | | |
|---|---|---|
| Holland, | 28 pkgs. | Phillipps & |
| ,, | £10 | T. |
| Germany, | 2 | T. |
| ,, | 45 | A. & M. |
| U. States, | 6 | Bevington |
| Germany, | 9 | Phillipps & |
| U. States, | 1 cs. | Burgoyn |

**Cream of Tartar—**
Spain, 5 pkgs. B. & F. Wf. Co., Ltd.
Holland, 50 Middleton & Co.
France, 16 C. F. Gerhardt
" 2 J. L. Lyon & Co.
" 10 W. C. Bacon & Co.
" 10 B. & F. Wf. Co., Ltd.
Holland, 5 "

**Dyestuffs—**
**Aniline**
Holland, 8 pkgs. Elkan & Co.
E. Indies, 1 J. P. Platt & Co.
**Anthracene**
France, 83 pkgs. Burt, Boulton, & Co.
**Argols**
Cape Town, 18 pkgs. Brown & Elmslie
Greece, 8 C. A. Rigopulo
**Cochineal**
Canaries, 10 pkgs. F. Huth & Co.
" 32 W. M. Smith & Sons
**Extracts**
U. States, 20 pkgs. E. H. Cousens & Co.
" 50 Williams, Torrey, & Co., Ltd.
Belgium, 50 L. J. Levinstein & Sons
Germany, 26 Elkan & Co.
Denmark, 5 A. F. White & Co.
Canada, 80 A. J. Humphrey
U. States, 100 Skilbeck Bros.
Denmark, 3 R. J. Fullwood & Bland
**Gambier**
E. Indies, 438 pkgs. Brinkmann & Co.
" 243 E. Boustead & Co.
" 495 Adamson, Gilfillan, & Co.
" 569 L. & I. D. Jt. Co.
" 1,096 W. H. Cole & Co.
" 814 Beresford & Co.
Germany, 228 Lewis & Peat
**Indigo**
E. Indies, 25 chts. L. & I. D. Jt Co.
Holland, 1 Ripley, Roberts, & Co.
Java, 2 bxs. L. & I. D. Jt. Co.
Holland, 2 J. Parlevliet
E. Indies, 54 R. Von Glehn & Sons
**Tanners' Bark**
N. Russia, 10 t. W. F. Malcolm & Co.
**Turmeric**
Cochin, 39 pkgs. J. P. Alpe & Co.
E. Indies, 20 L. & I. D. Jt. Co.
" 118 Brookes & Green
**Valonia**
A. Turkey, 50 t. A. J. Humphrey
" 25 C. & G. Gulbenkian & Co.
" 43 J. Graves
Greece, 1 "
A. Turkey, 39 A. & W. Nesbitt

**Farina—**
Holland, 100 pkgs. J. Anderson & Co.
Austria, 50 Vokins & Co., Ltd.
Holland, 100 R. G. Hall & Co.
" 70 J. Barber & Co.
" 100 Hicks, Nash, & Co.
Germany, 50 F. W. Harrison
Holland, 25 T. H. Lee
" 50 J. Anderson & Co.
Germany, 56 T. H. Lee
Holland, 50 Prcp. Chambln.'s Wf.

**French Chalk—**
Italy, £151 Magee, Taylor, & Co.

**Gambogo—**
E. Indies, 12 c. L. & I. D. Jt. Co.

**Glucose—**
Germany, 10 pkgs. 83 c. J. Knill & Co.
" 200 200 c. Trier, Meyer, & Co.
U. States, 600 387 Humphrey & Co.
" 900 900 Barrett, Tagant, & Co.
" 50 277 J. Keiller & Son
" 1,000 1,000 Fellows, Morton, & Co.
" 75 449 R. G. Hall & Co.
Germany, 300 300 Baxter & Hoare
" 137 338 Hicks, Nash, & Co.
France, 200 200 L. Norman & Co.
" 2 20 W. Grose & Co.
U. States, 50 291 L. Sutro & Co.
" 11 65 Beck & Pollitzer

**Guano—**
Cape Town, 300 t. D. de Pass & Co.

**Iron Sulphate—**
Germany, 43 pkgs. Charles & Fox

**Manganese—**
Sydney, 66 t. W. A. Sparrow

**Manure—**
E. Indies, 100 t. A. Hunter & Co.
Holland, 10 G. Rahn & Co.

**Methyl Alcohol—**
France, 40 pkgs. Lister & Biggs
Germany, 10 cks. Stein Bros.
U. States, 200 J. Kertel

**Mica—**
Norway, £8 M. D. Co.

**Ochre—**
France, 15 brls. J. B. Orr & Co.
" 85 cks. W. Harrison & Co.
Holland, 13 cs. Phillipps & Graves

**Painters' Colours—**
France, 8 pkgs. Flageollet & Co.
U. States, 11 W. Caudery & Co.
Belgium, 28 T. Palmer
Germany, 22 1 cs. T. H. Lee
" 5 L. & I. D. Jt. Co.
" 15 Soundy & Sons
" 15 C. S. Lovell
France, 3 Bennett S. S. Co., Ltd.
Germany, 6 Phillipps & Graves
" 40 Scrutton

**Paraffin Wax—**
U. States, 1,937 brls. J. H. Usmar & Co.
" 5 W. R. Comings & Co.
" 383 pkgs. H. Hill & Sons
" 70 P. W. Richardson
" 235 brls. T. T. Creed
Germany, 1 cs. Craven & Co.
U. States, 241 J. H. Usmar & Co.

**Phosphate Rock—**
Belgium, 210 t. Goold & Co.
France, 235 Lawes Chemical Manure Co.
Norway, 155 t. Forbes, Abbott, & Co.

**Pitch—**
U. States, 15 brls. Corrugauza M'fg. Co.
France, 30 Poth, Hille, & Co.

**Plumbago—**
Holland, 34 cks. B. Gallaway
Cochin, 158 brls. Phillipps & Graves
Ceylon, 107 J. Thredder, Son, & Co.
U. States, 500 bxs. Beck & Pollitzer

**Potash—**
France, 140 c. Petri Bros.
" 1 pkg. G E. Banes
Germany, 3 M. D. Co.
France, 100 F. W. Berk & Co., Ld.

**Potassium Carbonate—**
France, 515 c. Charles & Fox

**Potassium Chloride—**
France, 80 pkgs. F. W. Berk & Co., Ltd.

**Potassium Sulphate—**
France, 50 pkgs. Petri Bros.
" 70 F. W. Berk & Co., Ltd.
France, 43 9 cks. Weatherley, Mead, & Co.

**Pyrites—**
Spain, 714 t. F. C. Hills & Co.
Germany, 180 G. J. Steward

**Rosin—**
U. States, 600 brls. Moore & Hole

**Saltpetre—**
Germany, 49 cks. Craven & Co.
E. Indies, 601 bgs. C. Wimble & Co.
Canary Is., 5 brls. J. Walter & Co.
Germany, 80 kgs. P. Hecker & Co.
E. Indies, 3,592 bgs. Ralli Bros.

**Soda Ash—**
Belgium, 100 c. Magee, Taylor, & Co.

**Sodium Acetate—**
France, 16 pkgs. H. Lorenz
" 13 H. Wallace & Co.
Belgium, 10 Leach & Co.
Holland, 30 J. Owen
" 7 A. & M. Zimmermann

**Sodium Bromide—**
U. States, 6 pkgs. Pickford & Co.

**Sodium Chlorate—**
France, 101 pkgs. A. Hughes

**Sodium Hyposulphite—**
Holland, 514 pkgs. Beresford & Co.

**Stearine—**
France, 130 bgs. H. Hill & Sons
" 175 G. Boor & Co.
Belgium, 25 H. Hill & Sons
Holland, 30 18 bxs. Robinson, Roberts, & Co.

**Sulphur Chloride—**
France, 10 pkgs. Typke & King

**Tallow—**
N. Zealand, 8 cks. Low, Sons, & Bedford
" 7 J. Graves
" 6 Flack, Chandler, & Co.
" 5 Culverwell, Brooks, & Co.
" 3 A. Tremearne & Co.
Melbourne, 141 D. C. Thomas & Sons
Sydney, 15 Aust. Meat Co.
Germany, 75 C. B. Leighton
Canary, 13 Price's Candle Co.
U. States, 36 pkgs. W. W. Young

**Tallow and Stearine—**
Belgium, 13 cks. H. Wallace & Co.

**Tar—**
N. Russia, 2,996 brls. W. F. Malcolm & Co.

**Tartaric Acid—**
France, 20 pkgs. B. & F. Wf. Co., Ltd.
Holland, 23 pkgs. Middleton & Co.

**Turpentine—**
France, 15 cks. T. Trapp & Sons

**Ultramarine—**
Germany, 11 pkgs. G. Steinhoff
Belgium, 6 Leach & Co.
Holland, 5 cs Hernu, Peron, & Co.

**Varnish—**
Belgium, 8 pkgs. Stobbs, Wilson, & Co.
U. States, 10 Dawson Bros.
Belgium, 6 D. C. Thomas & Sons

**Vermilion—**
Hong Kong, 30 cs. L. & I. D. Jt. Co.

**White Lead—**
Holland, 38 cks. Blundell, Spence, & Co.
Belgium, 50 "
" 4 Stobbs, Wilson, & Co.
" 4 brls Leach & Co.
Holland, 41 J. L. Lyon & Co.
Germany, 17 Elkan & Co.
Belgium, 50 Leach & Co.
Germany, 31 Randall Bros.
Holland, 20 Blundell, Spence, & Co.
Belgium, 13 O'Hara, Mathews, & Co.
Austria, 8 pkgs. W. Adolph & Co.

**Zinc Oxide—**
Holland, 50 brls. M. Ashby, Ld.
Germany, 15 cks. Beresford & Co.

## LIVERPOOL.

*Week ending November 3rd.*

**Acetic Acid—**
Rotterdam, 28 botls.

**Ammonium Chloride—**
Hamburg, 1 ck.

**Ammonium Sulphate—**
Rotterdam, 9 cks.

**Barytes—**
Rotterdam, 24 cks.

**Borate of Lime—**
Antofagasta, 1,280 bgs. W. Brandts, Sons & Co.

**Castor Oil—**
Marseilles, 10 cs. 183 brls.
Calcutta, 750 Petrocochino Brs.
" 2,113 Ralli Brs.

**Chemicals** *(otherwise undescribed)*
Rouen, 18 cks. Co-op. W'sale Society, Ld.
Rotterdam, 45

**Chloroform—**
Havre, 3 cs. Cunard S. S. Co., Ld.

**Chrome Ore—**
Baltimore, 36 brls. P. R. M'Quie & Son

**Colours—**
Antwerp, 8 brls. J. T. Fletcher & Co.
" 2
Rotterdam, 5 1 ck. 16 cs.

**Copperas—**
Hamburg, 17 brls.

**Dyestuffs—**
**Algorabilla**
Havre, 516 bgs. Cunard S. S. Co., Ld.
**Argols**
Oporto, 30 cks. German Bank of London
**Cutch**
Rangoon, 800 bxs.
**Divi Divi**
Amsterdam, 242 bgs. Brown, Geveke & Co.
**Extracts**
Ghent, 300 cks. J. T. Fletcher & Co.
Marseilles, 60
Bordeaux, 120
**Myrabolams**
Bombay, 756 bgs. Ralli Brs.
" 296 D. Sassoon & Co.
" 670
**Orchella**
Lisbon, 8 bls. 10 bgs. Edward Brs.
**Saffron**
Marseilles, 1 cs. Dart & Co.
**Sumac**
Trieste, 100 bgs. F. Steiner & Co.
**Valonia**
Patras, 225 bgs. C.G. Papayanni & Co.
" 223 G. C. Spiropulo

**Farina—**
Hamburg, 50 bgs. Browne, Geveke & Co.
Fiume, 100 sks.

**Glucose—**
Havre, 5 cks. Cunard S. S. Co., Ld.
Dunkirk, 100 bgs.

**Horn Piths—**
M. Video, 15 t. J. Gordon & Co.

**Iodine Dust—**
Iquique, 75 bgs. Hainsworth, Watson & Co.

**Lead Acetate—**
Hamburg, 13 cks.
Rotterdam, 32

**Limestone—**
Antwerp, 3 cs. 2 cts. J. T. Fletcher & Co.
" 8 blks.

**Manganese—**
Bordeaux, 503 t. R. J. Francis & Co.

**Mica—**
Quebec, 19 bxs. Cunard Express Co.

**Ochre—**
Marseilles, 50 cks. 44 brls.
Rouen, 120 cks. Co-op. W'sale Society, Ld.

**Paint—**
Marseilles, 1 kg.
Rotterdam, 2 cks.

**Phosphate—**
Ghent, 20 bgs. 280 t.

**Phosphate of Lime—**
Lisbon, 550 t. G. M. Baue.

**Phosphate Rock—**
Brunswick, 1,212 t. W. & W. H. Stead, Ld.

**Plumbago—**
Antwerp, 10 bgs.

**Potash—**
Rouen, 50 cks. Co-op. W'sale Society, Ld.
Montreal, 25 brls. Wilson, Patterson & Co.
" 25 J. C. Linton
Dunkirk, 33 dms.

**Potassium Sulphate—**
Rouen, 250 bgs. Co-op. W'sale Society, Ld.

**Pyrites—**
Huelva, 3,086 t. Matheson & Co.
" 1,700 Tennants & Co.

**Rosin—**
New York, 495 brls.
Baltimore, 400
Norfolk, Va., 1,000

**Salt—**
Trieste, 9 brls. T. F. Weidner & Co.

**Saltpetre—**
Hamburg, 50 brls. 15 cks.

**Soap—**
Bari, 81 cs.
New York, 3 Burroughs, Wellcome & Co.
" 2 Sunandiris, Cotteas & Co.
" 2 Franklin, Hallet & Co.
Marseilles, 51 25 pkgs. 75 bxs.
Boston, 1
Marseilles, 30 A. Maubre
Philadelphia, 7 Ayrton & Saunders

**Soapstone—**
Bordeaux, 609 bgs. G. G. Blackwell
Genoa, 200

**Stearine—**
Antwerp, 57 bgs.

**Sulphur—**
Huelva, 1 090 t. Matheson & Co

**Tallow—**
Las Palmas, 600 cks.
Baltimore, 325 tcs.
Philadelphia, 16 hhds.
Boston, 75 50

**Tartar—**
Ancona, 4 cks. Henderson, Hogg & Co.
Bordeaux, 30

**Tartaric Acid—**
Rotterdam, 13 cks 20 kgs.

**Tartar Salts—**
Rotterdam, 10 cks.

**Tin Chloride—**
Antwerp, 3 cks. J. T. Fletcher & Co.

**Ultramarine—**
Rotterdam, 14 cks. 7 cs.

**Varnish—**
Havre, 1 cs. Cunard S. S. Co, Ld.
Antwerp, 2 cks.

**Verdigris—**
Marseilles, 2 brls.
Bordeaux, 3 cks.

**White Lead—**
Ghent, 9 cks.
Antwerp, 7 cs.
Rotterdam, 66

**Zinc Ashes—**
Marseilles, 23 pkgs.

**Zinc Oxide—**
Antwerp, 120 brls.
Rotterdam, 50 cks. O & H. Marcus
" 31

**Zinc White—**
In transit, 20 cks.

## HULL.

*Week ending November 5th.*

**Acetate—**
New York, 510 bgs. Wilson, Sons & Co., Ld.

**Acid—**
Danzig, 1 brl. Wilson, Sons & Co., Ltd.

**Aluminium—**
Hamburg, 25 cks.

**Arsenic—**
Hamburg, 8 brls. Wilson, Sons & Co., Ld.

**Barium—**
Hamburg, 5 cks.

**Barytes—**
Antwerp, 88 cks.
Rotterdam, 46 Hutchinson & Son
Bremen, 24 Veltmann & Co.

**Borax—**
Hamburg, 5 brls. Wilson, Sons & Co., Ld.

**Caoutchouc—**
Hamburg, 2 cs. C. M. Lofthouse & Co.

**Chemicals** (*otherwise undescribed.*)
Bremen, 3 cs. 1 kg. 1 ck. Veltmann & Co
" 2 cks. J. Pyefinch & Co.
" 5 cs. Wilson, Sons & Co., Ld.
Danzig, 8

**Colours—**
Rotterdam, 11 pks. G. Lawson & Sons
" 2 cs. 56 W. & C. L. Ringrose
Antwerp, 18 cks.
Rotterdam, 7 cs 21 Hutchinson & Son
Flushing, 13 cs. 1 268 pks. Zeeland S. S. Co.
Ghent, 16
Bremen, 1 Veltmann & Co.
Danzig, 41
Stettin, 150 Wilson, Sons & Co., Ld.

**Dextrine—**
Hamburg, 100 bgs.
Stettin, 30 Wilson, Sons & Co., Ld

**Dyestuffs—**
**Alizarine**
Rotterdam, 18 cks. W. & C. L. Ringrose
**Madder**
Rotterdam, 1 ck. Hutchinson & Son
" 2 cks. G. Lawson & Sons
**Myrabolams**
Bombay, 2,523 bgs.
**Sumac**
Ergasteria, 320 bgs.
**Tannin**
Hamburg, 1 ck. W. S. Merriken

**Farina—**
Ghent, 120 cs. Wilson, Sons & Co., Ld.
Groningen, 1,100 bgs. Anglo-Dutch Trading Co.
Stettin, 2,200 Wilson, Sons & Co., Ld.
" 400
Harlingen, 1,370 W. & C. L. Ringrose

**Glucose—**
Stettin, 1,400 bgs.

**Kaolin—**
Rotterdam, 23 cks. Hutchinson & Son
" 23 Reckitt & Sons

**Paint—**
Boston, 40 cs. Wilson, Sons & Co., Ld.

**Potash—**
Dunkirk, 60 pks. Wilson, Sons & Co., Ld.

**Rosin—**
New York, 50 brls. Wilson, Sons & Co., Ld.
Hamburg, 6 cs. "

**Saltpetre—**
Hamburg, 8 brls. G. Lawson & Sons
" 4 cks.

**Soda—**
Rotterdam, 8 cks. G. Lawson & Sons
Antwerp, 1 Wilson, Sons & Co., Ld.

**Sodium Nitrate—**
Rotterdam, 8 cs. Hutchinson & Son

**Stearine—**
Rotterdam, 20 bgs. Wilson, Sons & Co., Ld.
Antwerp, 13 pks. "

**Tallow—**
Flushing, 1 ck. Zeeland S.S. Co.

**Tin Oxide—**
Rotterdam, 7 cks. Hutchinson & Son

**Turpentine Oil—**
Libau, 52 cks.

**Waste Salt—**
Hamburg, 150 t. G. Lawson & Sons
" 75 A. E. Peacock
" 1,016 bgs. E. Kipps & Co.

**White Lead—**
Rotterdam, 37 cks
" 9 Hanger, Watson & Harris
Antwerp, 21 cks. Bailey & Leetham
Rotterdam, 38 Hutchinson & Son
" 19 W. & C. L Ringrose
" 9 Sissons Bros & Co.
" 29 Tudor & Sons
" 11 Gibson Brs.
" 20 A. Sanderson & Co.
" 17 Storry, Witty & Co.

**Zinc Oxide—**
Rotterdam, 25 cks. W. & C. L. Ringrose

## GLASGOW.

*Week ending November 10th.*

**Alum—**
Rotterdam, 16 cks. G. & J. Boyd

**Barytes—**
Rotterdam, 92 cks. J. Rankine & Son

**Barytes Sulphate—**
Antwerp, 26 cks.

**Bisulphate of Lime—**
Marseilles, 81 cs.

**Chemicals** (*otherwise undescribed*)
Hamburg, 40 cs.
Rotterdam, 110 J. Rankine & Son

**Colours—**
Stettin, 8 cks.
Hamburg, 7
Rotterdam, 2 cs. J. Rankine & Son

**Cottonseed Oil—**
New York, 5 brls.

**Cream of Tartar—**
Marseilles, 9 cks.

**Dextrine—**
Stettin, 10 bgs.
" 5 G. & J. Boyd

**Dyestuffs—**
**Alizarine**
Rotterdam, 235 cks.
**Extracts**
Baltimore, 6 brls J. Strang & Sons
" 5
Antwerp, 4 cks.
**Madder**
Rotterdam, 5 butts. J. Rankine & Son
Marseilles, 14 cks.
**Tanners' Bark**
Bona, 1,820 c. Martin & Miller

**Farina—**
Stettin, 400 bgs.

**Glucose—**
Stettin, 25 cks.

**Guano—**
Drontheim, 10 bgs.

**Ochre—**
Marseilles, 15 cks.

**Paint—**
Montreal, 4 brls.
Marseilles, 4
New York, 3

**Potash—**
Rotterdam, 20 cks. J. Rankine & Son

**Pyrites—**
Huelva, 1,680 t. J. Veitch
" 3,218 Tharsis Co., Ld.

**Rosin—**
Baltimore, 1,000 brls. W. N. Gemmell & Co.
" 1,885 Cant & Kemp

**Salicylic Acid—**
Hamburg, 1 cs.

**Salt—**
Danzic, 1 tub. Bryce & Rumpff

**Soap—**
Marseilles, 1 cs.
In transit, 8

**Soda—**
Rotterdam, 54 cks. J. R

**Sodium Nitrate—**
Iquique, 1,120 t. Alex. Cross

**Tallow—**
Baltimore, 240 tres J. Osborn
New York, 60
Rotterdam, 1 bg. J. Rankine

**Tartar—**
Oporto, 4 cks.

**Varnish—**
New York, 421 brls.

**Waste Salt—**
Hamburg, 500 bgs.

**Zinc Ashes—**
Antwerp, 1 ck.

**Zinc Oxide—**
New York, 100 brls.
Antwerp, 25 cks.

**Zinc White—**
Rotterdam, 50 cks. J. R

## TYNE.

*Week ending November 5th*

**Alum Earth—**
Hamburg, 35 cks. Tyne S. S

**Barytes—**
Antwerp, 21 bgs. Tyne S. S

**Colours—**
Rotterdam, 2 cks. Tyne S. S
Hamburg, 1 cs. "

**Ochre—**
Rouen, 670 cks. Wm. Y

**Plumbago—**
Antwerp, 5 bgs. Tyne S. S

**Saltpetre—**
Harburg, 261 t. Ceylon We

**Zinc Ashes—**
Antwerp, 1 pkge. Tyne S. S

## GRIMSBY.

*Week ending October 29th*

**Caoutchouc—**
Hamburg, 17 cs.

**Chemicals** (*otherwise undescr*
Hamburg, 9 cs.

**Farina—**
Hamburg, 200 bgs.

**Size—**
Hamburg, 40 bgs.
Antwerp, 18 cks.

## GOOLE.

*Week ending October 26th.*

**Alum—**
Rotterdam, 16 brls.

**Antimony—**
Boulogne, 4 cks.

**Caoutchouc—**
Boulogne, 9 cks.

**Dyestuffs—**
**Alizarine**
Rotterdam, 25 cks. 64 pkgs.
**Extracts**
Rotterdam, 30 brls.
Hamburg, 36 cks.

**Dyestuffs** (*otherwise undescri*
Boulogne, 30 cks. 24 cs. 30 p

**Farina—**
Hamburg, 200 bgs.
Delfszyhl, 1,613

**Phosphate—**
Ghent, 200 t.

**Potash—**
Dunkirk, 23 cks.

**Potassium Carbonate—**
Hamburg, 11 cks.

**Saltpetre—**
Rotterdam, 100 bgs.
Hamburg, 22 cks.

**Waste Salt—**
Hamburg, 232 t. 50 dms. 9st

**Zinc Oxide—**
Antwerp, 20 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending November 9th.*

**Acids—**
Penang, 10 cs. £11
Singapore, 12 drs. 14

**Acids and Disinfectants—**
Brisbane, 7 cs. £13

**Alkali—**
Huelva, 2 c. £11
San Francisco, 5 8

**Alum Cake—**
Bordeaux, 5 t. 13 c. £15

**Aluminoferric—**
Melbourne, 10 t. £32

**Aluminous Cake—**
Rotterdam, 68 t. 13 c. £150
Calcutta, 37 4 120

**Ammonia—**
Sydney, 63 cs. £270
Algoa Bay, 2 6

**Ammonium Carbonate—**
B. Ayres, 1 t. 10 c. £50
St. Petersburg, 7 10 185
New York, 95 pkgs. 305
Adelaide, 5 7

**Ammonium Chloride—**
Paris, 5 cks. £45
Salonica, 28 140
Odessa, 34 brls. 170
Auckland, 13 c. 15
Bourgas, 1 t. 33
Constantinople, 1 33
Hamburg, 35 cks. 125
Gothenburg, 1 33
Stettin, 2 25

**Ammonium Nitrate—**
Algoa Bay, 17 cks. £158

**Ammonium Sulphate—**
Hamburg, 30 t. £298
Valencia, 10 110
Jersey, 25 300

**Benzoic Acid—**
New York, 2 cs. £25

**Bisulphite of Lime—**
Oporto, 13 c. £12
Rangoon, 1 t. 7 34
Calcutta, 3 16 56

**Bleaching Powder—**
San Francisco, 20 t. 1 c. £196

**Borax—**
Natal, 5 c. £8
Melbourne, 5 t. 250

**Carbolic Acid—**
Rotterdam, 11 t. 1 c. £158
" 11 1 128 drs. 883
Hamburg, 10 cks. 10 49
Kingston, 6 4 20 131

**Caustic Potash—**
Naples, 9 c. £27
Canterbury, 2 t. 14 88

**Caustic Soda—**
Wellington, 2 c. £6
Natal, 4 t. 4 103
E. London, 6 9
Bourgas, 2 15 32
Algoa Bay, 3 10 81
San Francisco, 87 1 1,010
Lyttelton, 2 15 29

**Chemicals** (*otherwise undescribed*)
Montreal, 20 cs. £75
Malaga, 1 c. 20
Natal, 6 1 ck. 30
Huelva, 79 pkgs. 199
Madrid, 13 c. 104

**Citric Acid—**
Moscow, 1 t. £160
Reval, 10 c. 84
Hamburg, 18 3 kgs. £172
Antwerp, 10 82
Seville, 5 42
Pt. Elizabeth, 1 9
Rotterdam, 5 45

**Coal Products—**
**Aniline**
Brisbane, 2 cs. £16
**Aniline Dyes**
Calcutta, 2 tks. £141
**Aniline Oil**
Rotterdam, 20 drs. £700
**Anthracene**
Cologne, 121 cks. £546
Dusseldorf, 100 524
**Benzol**
Boulogne, 30 cks. £255
Calais, 20 pns. 140
Rotterdam, 87 526
Philadelphia, 20 drs. 231
**Coal Tar Dyes**
Antwerp, 1 ck. £25
**Creosote**
Dieppe, 23,500 glns. £123
**Naphtha**
Treport, 30 brls. £73
**Naphthalene**
Konigsberg, 1 ck. £11
Hamburg, 25 97
Treport, 1 17
**Paraffin Wax**
Hobart, 40 cs. £139
Antwerp, 17 cks. 175
**Pitch**
Alexandria, 350 brls. £139
Helsingfors, 225 t. 304
Antwerp, 789 1,180
Boston, 250 130
Philadelphia, 300 cks. 554 pkgs. £416
Hochfield, 276 373
Danzig, 200 270
New York, 1,950 bgs. 357
**Tar**
Newcastle, 60 drs. £14
Helsingfors, 1,400 brls. 572
New York, 1,300 cks. 369
Boston, 249 138
**Tar Oil**
Marseilles, 45 brls. £23

**Coal Products** (*otherwise undesc'd.*)
Hong Kong, 20 brls. £20

**Copper Sulphate—**
Wellington, 1 t. £15
Odessa, 5 2 c. 70
Adelaide, 10 142
Genoa, 2 35
Rio de Janeiro, 1 2 15
Rotterdam, 5 1 70
Aden, 2 32
Lisbon, 21 4 287
Cologne, 5 2 73

**Corrosive Sublimate—**
Marseilles, 5 cs. £86

**Cream of Tartar—**
Sydney, 1 t. 10 c. £127
Adelaide, 1 84
Natal, 1 83
Melbourne, 1 5 106
Brisbane, 5 24
Algoa Bay, 5 kgs. 10

**Disinfectants—**
Sydney, 26 pkgs. 22 cs. £80
Kingston, 14 17
Melbourne, 40 drs. 82 cks. 407
Montreal, 13
Wellington, 15 cs. 32
Rio de Janeiro, 20 40
St. Lucia, 40 5

**Hypophosphite—**
Baltimore, 1 t. 10 c. £290

**Liquid Ammonia—**
Sydney, 54 drs. £23

**Manure—**
Demerara, 14 t. 5 c. 29
Treport, 5 30
Havre, 25 105
La Rochelle, 300 1,080
Rouen, 72 315
Motril, 145 13 1,168
Barcelona, 21 5 170
Alicante, 74 2 592
Tarragona, 27 14 220
Barbadoes, 50 400
Jersey, 194 3 1,221
Lisbon, 60 179
M. Video, 3 1 18
Malaga, 43 10 244
Lyttleton, 25 165
Hamburg, 150 1,500

**Phosphide Calcium—**
Marseilles, 1 pkg. £15

**Potash Crystals—**
Fremantle, 6 c. £24

**Potassium Cyanide—**
Pt. Elizabeth, 5 c. £53

**Saltpetre—**
Napier, 7 c. £8
Cape Town, 10 10
Piræus, 1 t. 18 38
Adelaide, 1 22
Sydney, 5 110
Boston, 3 16 82
Vigo, 3 15 80
Rio de Janeiro, 8 11 192
Melbourne, 2 10 55
Hamburg, 2 9 55

**Sheep Dip—**
Wellington, 221 cs. £660
Timaru, 16 pkgs. 22
Auckland, 50 125
Algoa Bay, 2 t. 17 c. 59
Fremantle, 150 cs. 450
Geraldton, 15 45
Natal, 1,048 drs. 236
B. Ayres, 2,000 6,000
Invercargill, 300 750
Lyttelton, 600 60 170 pkgs £1,754

**Soda—**
Cape Town, 1 t. £4

**Soda Crystals—**
Zanzibar, 14 c. £4
Singapore, 11 3
Newcastle, 20 t. 19 68

**Sodium Bicarbonate—**
Sydney, 1 t. 3 c. £24
Marseilles, 10 70
Natal, 6 9
Pt. Elizabeth, 1 10 10
Lyttelton, 2 10 19
Christchurch, 3 20

**Sodium Sulphate—**
Norrkoping, 50 t. £75
Baltimore, 50 130
Ghent, 60 90

**Sodium Supersulphate—**
Adelaide, 1 t. £11

**Sodium Tartrate—**
Melbourne, 5 cs. £17

**Sulphur—**
Calcutta, 22 t. £132
Natal, 4 19 c. 41
Algoa Bay, 30 kgs. 15
Rio de Janeiro, 1 9

**Sulphuric Acid—**
Algoa Bay, 25 cs. £19

**Superphosphate—**
Mauritius, 50 t. £182
Valencia, 20 110
Martinique, 680 2,720
Lisbon, 10 43

**Superphosphate of Lime—**
Jersey, 60 t. £250

**Tartaric Acid—**
Adelaide, 1 t. £111
Libau, 2 c. 13
Pt. Elizabeth, 1 cs. 7
B. Ayres, 5 cks. 55
Algoa Bay, 5 kgs. 11
Melbourne, 10 56
Hamburg, 2 11

## LIVERPOOL.

*Week ending November 9th.*

**Acetic Acid—**
Lisbon, 16 c. £9

**Alum—**
Alexandretta, 2 t. 10 c. £15
Lisbon, 1 3 10
Ibrail, 5 3 24
Galatz, 4 15 23
Sydney, 2 16 14
Montreal, 11 17 63
Malta, 1 5
Rio de Janeiro, 11 3
Rosario, 7 10 37
Vigo, 1 1 q. 5

**Alum Cake—**
Montreal, 3 t. 10 c. £15

**Aluminoferric Cake—**
Montreal, 14 t. 18 c. £44

**Ammonia—**
Valparaiso, 3 c. 3 q. £7
B. Ayres, 16 16

**Ammonium Carbonate—**
Gefle, 10 c. £15
Rotterdam, 7 10
Hamburg, 1 t. 16 32
Barcelona, 1 28
Valparaiso, 10 25
Stockholm, 11 13
Rotterdam, 1 2 31
Montreal, 3 3 q. 86

**Ammonium Chloride—**
Rotterdam, 1 t. 16 c. 2 q. £32
Monte Video, 1 3 5
Genoa, 1 11 33
Montreal, 2 3 95
Antwerp, 1 11 32

**Ammonium Sulphate—**
Venice, 9 t. 17 c. 3 q £120
Bordeaux, 6 64
Tarragona, 5 1 52
Samarang, 35 5 1 396
Grand Canary, 1 10 15
Valencia, 209 11 1 2,131
Barcelona, 51 19 326

**Antimony—**
Bombay, 1 ck.

**Arsenic—**
B. Ayres, 2 t. 10 c. £35

**Asbestos—**
Adelaide, 2 cs.
B. Ayres, 4
Constantinople, 2
Coronel, 1
Manilla, 1
Bilbao, 1 bl.

**Barytes Hydrate—**
Hamburg, 2 t. 10 c. 3 q. £20

**Bleaching Powder—**
Baltimore, 183 cks.
Boston, 805
Capetown, 20 cs.
Naples, 40
New York, 231
Ferrol, 2
Ghent, 66
Montreal, 168

**Boracic Acid—**
Havre, 1 t. 1 c. 2 q. £42
Yokohama, 1 38

**Borax—**
Vera Cruz, 4 c. £6
Santiago, 5 7
Lisbon, 1 t. 1 3 q. 30
Antwerp, 2 4 86
Vera Cruz, 12 1 17
Rotterdam, 11 2 332
Hamburg, 1 3 1 35
Piræus, 19 2 30

**Carbolic Acid—**
Constantinople, 5 c. 2 q. £18
Bombay, 200 lbs. 125 dms. 24
Valparaiso, 11 c. 10
Montreal, 1 t. 16 58

**Caustic Soda—**
Antwerp, 4 dms.
Barcelona, 200 50 cks.
Bilbao, 4
Bremen, 10 brls.
Constantinople, 22
Melbourne, 80 9 pkgs.
Rouen, 68
Seville, 100 100 cks.
Sydney, 70
Abo, 2
Alexandretta, 10
Bombay, 7
Capetown, 6
Carril, 30 6 brls.
Carthagena, 10
Corunna, 12
Genoa, 30 5
Hamburg, 36
Montreal, 190
New York, 500
Odessa, 50
Philadelphia, 90
Rio Grande do Sul, 110 dms.
Vancouver, 6
Vigo, 28 10 brls.

**Chemicals** (*otherwise undescribed*)
Bombay, 4 t. 10 c. £151
Philadelphia, 13 2 326
Genoa, 1 36
New Orleans, 5 8
Oporto, 4 7

**China Clay—**
Bombay, 33 t. 17 cs

**Chloride of Lime—**
Philadelphia, 45 t. 4 c. £405

**Coal Products—**
**Alizarine Oil**
Lisbon, 1 ck.
**Aniline Colours**
Bombay, 3 cs.

Boston, 3 kgs.
Genoa, 3 1

**Aniline Dye**

Halifax, 1 cs.

**Aniline Oil**

Antwerp, 2 dms.
Genoa, 6 10 tins.

**Aniline Salts**

Bombay, 9 c. £32
New York, 22 t. 16 1 q. 1,293

**Cobalt Oxide—**

Malaga, 1 c. £39

**Copperas—**

Beyrout, 5 t. 13 c. £11
Galatz, 5 14
Bombay, 36 10 3 q. 87

**Copper Sulphate—**

Corunna, 10 c. 3 q. £8
Constantinople, 1 t. 9 21
Marseilles, 73 1,107
Trieste, 10 2 2 145
Barcelona, 5 1 1 74
Dunedin, 1 15
Galatz, 1 15
Genoa, 5 2 71
Bordeaux, 95 6 1,600
Halifax, 15 11
Melbourne, 5 75
Calcutta, 5 74
Valparaiso, 5 9 2 82
Iquique, 24 12 2 363

**Disinfectants—**

B. Ayres, 2 t. 3 q.
Bombay, 15 17 £152

**Dried Blood—**

Gr. Canary, 2 t. 2 c. £13

**Iron Oxide—**

B. Ayres, 5 t. 5 c. 2 q. £33

**Iron Sulphate—**

B. Ayres, 4 t. 1 q. £8

**Lime—**

Lagos, 4 t. 10 c. £5
Addah, 15 cks.

**Magnesia—**

Boston, 7 cs.
Coquimbo, 3 kgs.
Corunna, 1 ck.
New York, 10 cs.

**Magnesium Chloride—**

Montreal, 12 t. 18 c. £35

**Magnesium Sulphate—**

Bombay, 47 cks. 50 kgs.

**Manure—**

St. Malo, 370 t. 4 c. £1,763
Jersey, 5 50
Montserrat, 4 1 2 q. 30

**Metallic Sodium—**

Rotterdam, 3 t. 9 c. 3 q. £702

**Muriatic Acid—**

Rio de Janeiro, 9 c. £6

**Nitrate of Iron—**

Montreal, 8 t. 18 c. 2 q. £29

**Ochre—**

Callao, 10 cks.

**Oxalic Acid—**

Philadelphia, 2 t. 10 c. £67
Montreal, 1 4 45

**Paint—**

Bathurst, 16 dms.
Bilbao, 26 2 bxs.
Bombay, 20 kgs.
Ferrol, 16
Havana, 1 ck.
Ilo Ilo, 250
Malta, 9
Manilla, 16 cks. 10 brls.
Rio de Janeiro, 1 cs. 200 kgs.
San Francisco, 115
Samana, 17 cks.
Sierra Leone, 38
Sydney, 4
Arica, 17
Callao, 40 cs. 29 6 dms.
Capetown, 5 60
Carthagena, Sp., 84
Corinto, 56
Fernando Po, 29
Hamburg, 50
Havre, 50 tins.
Iquique, 10
Matanzas, 4
Monrovia, 1
New York, 61 brls.
Ponce, 3
Porto Alegre, 4
Port Natal, 33 cs. 20
Santiago de Cuba, 1 cs.
Valparaiso, 10
Victoria, B.C., 4 cks. 20
Villa Belle, 6

**Painters' Co ours—**

Barcelona, 40 cks. 2 brls.
Bombay, 94 cs. 576 kgs.
B. Ayres, 4 65 80
Calcutta, 20
Canada, 2 pkgs.
Corral, 4
Fayal, 2 2
Malta, 4
Melbourne, 51 5 pkgs.
Monte Video, 7 brls.
Montreal, 1 3
Naples, 40
New York, 2 bxs. 150
Nassau, 4
Piræus, 2 cs. 4 5
Rosario, 4 333 663
St. John's, Nfld., 4 5 dms.
Savanilla, 1 cs. 18 bls.
Syra, 9 brls.
Talcahuano, 30 10 cs.
Valparaiso, 22 120 dms. 184
Arica, 2 cs. 1
Bahia, 2 brls. 19
Baltimore, 50
Candia, 2 tcs. 1
Constantinople, 425
Corfu, 12 20
Ghent, 10
Havana, 8 100
La Libertad, 100
Odessa, 40
Para, 5 tcs. 1 cs. 6 5 2
Porto Rico, 7
Rio de Janeiro, 4 cs. 88
Rotterdam, 22
Seville, 14 cks.

**Paraffin Wax**

Piræus, 8 c.
Stockholm, 40 cs.
Bari, 50

**Phosphate Rock—**

Genoa, 12 t. £30

**Phosphorus—**

Shanghai, 13 cs. £130
B. Ayres, 1 t. 4 c. 176

**Pitch—**

Bathurst, 10 cks.
Cette, 1,552½ t.
Bombay, 51 bdls.
Coquimbo, 175 brls.
Genoa, 115½ t.
Marseilles, 575
Monte Video, 30 brls.

**Plumbago—**

Rosario, 6 c.

**Potassium Bicarbonate—**

Alexandretta, 2 t. 10 c. £111

**Potassium Bichromate—**

Barcelona, 7 t. 8 c. £300
B. Ayres, 3 10 3 q. 140

**Potassium Chlorate—**

Philadelphia, 7 t. 10 c. £423
Leghorn, 1 56
Stockholm, 5 227
Sydney, 12 560
Hiogo, 7 10 350
Batoum, 1 65
Antwerp, 2 10 140
Naples, 4 11
B. Ayres, 2 10 114
Rosario, 10 33
New York, 20 1,085
Rotterdam, 2 12 150
St. Petersburg, 2 10 140

**Potassium Stannate—**

Bombay, 1 t. 5 c. £107

**Salt—**

Adelaide, 1 t. 1 c.
Algoa Bay, 24
Baltimore. 150
B. Ayres, 37 14
Cameroons, 39 1
Capetown, 25
Coronel, 12
Gr. Bassa, 5
Hamburg, 147¾
Ilo Ilo, 15
Malta, 1
Manilla, 8
Monrovia, 15
Montreal, 218
Nakskov, 99
Newport News, 399
New York, 50 8
Old Calabar, 53½
Quebec, 516 13
San Francisco, 980
Santos, 6 6
Talcahuano, 3 11
Trinidad, 49 3
Valparaiso, 259 3
Accra, 28 15
Antwerp, 698.
Bakana, 16
Boston, 100
Calcutta, 6,277
E. London, 17¾
Ghent, 362
Iceland, 120
Kansas City, 65
Kingston, Jam., 5
Kolding, 120
Madeira, 1 3
Manilla, 10
Opobo, 10 14
Para, 17 17
Philadelphia, 59
Rio Grande do Sul, 2 t. 9
,, Janeiro, 3 13
Rotterdam, 424
Savannah, 400
Vancouver, 100
Victoria. B.C., 103

**Salt Cake—**

Philadelphia, 75 t. £160
Hartford City, 150 10 c. 373
Baltimore, 431 3 1,014
Boston, 5 10 13

**Saltpetre—**

Rotterdam, 6 c. £6
Para, 5 6
Victoria, V.I., 7 8
Piræus, 7 t. 10 159

**Sheep Dip—**

Punta Arenas, 1 t. 5 c. £100
Monte Video, 3 6 71
B. Ayres, 25 18 2 q. 850

**Soap—**

Barbadoes, 810 bxs.
Bombay, 5 cs. 30 dms.
C. C. Castle, 40 1
Curacao, 100
Geneva, 120
Genoa, 75
Halifax, 100 cs.
Maceio, 10
Malta, 20
Natal, 16 1,100 bxs.
Neuchatel, 120
Pt. Elizabeth, 55
Quebec, 1
St. John's, Nfld., 20
,, N.B., 200
Singapore, 41 ,660
Toronto, 300
Valparaiso, 22
Alexandria, 20
Algoa Bay, 50
Antigua, 100
Annatto Bay, 30
Bermuda. 60
Bordeaux, 500
Brussels, 400
Calcutta, 9 cks. 2
Carthagena, Sp., 2
Constantinople, 21
E. London, 50
Grand Canary, 90
Hong Kong, 420
Kingston, Jam., 2,230
Lausanne, 120
Marseilles, 18
Mellila, 10
Morant Bay, 25
Mossel ,, 500
New York, 25 tcs. 6 cks.
Pt. Natal, 5
,, Said, 310
Rangoon, 15
Romanshorn, 202
Rotterdam, 500
St. Kitts, 100
,, Lucia, 275
Sourabaya, 1,000
Trieste, 1,400
Trinidad, 653

**Soda Alkali—**

Batoum, 20 brls.
Galatz, 40
Genoa, 87
Montreal, 150
Odessa, 100
Sydney, 30
Volo, 17

**Soda Ash—**

Baltimore, 667 cks. 1,420 bgs.
Batavia, 5
Bombay, 5
Boston, 308 2,240
B. Ayres, 30 100 brls.
Calcutta, 22
Callao, 65
Hamburg, 100
Kobe, 120
Melbourne, 117
Monte Video, 30
Montreal, 50 28
Philadelphia, 355 1,000 bgs.
Rio de Janeiro, 19
Sydney, 21
Alexandretta, 10 brls.
Beyrout, 150
Corfu, 50
Ghent, 2
Latakin, 30
N. York, 718 tcs. 444 6,816 bgs.
Odessa, 98
Rio Grande do Sul, 25 brls.
Rosario, 100
Smyrna, 100
Venice, 34
Volo, 104

**Soda Crystals—**

Batavia, 50 cks.
Bombay, 10 427 kgs.
Boston, 330
Demerara, 33
Montreal, 160 bgs. 593 567
Naples, 13
New York, 50 112
Philadelphia, 560
Toronto, 50
Valparaiso, 50
New Orleans, 100
Sourabaya, 67
Tangiers, 7

**Sodium Acetate—**

Sydney, 2 t. 6 c. 2 q.

**Sodium Biborate—**

Hamburg, 17 t. 1 c. 1 q.
Montreal, 3 2 3
New York, 2 3 1
Boston, 1
Yokohama, 50 cs.

**Sodium Bicarbonate—**

Algoa Bay, 10 kgs. 5 bgs.
Alicante, 100
Amsterdam, 20
Barcelona, 20 5 brls.
B. Ayres, 300 50 cks.
Hamburg, 10 2
Havre, 124
Malaga, 40
Malta, 20
Melbourne, 730 30
M. Video, 50 50
Montreal, 325 15 400
Quebec, 25
Rio de Janeiro, 10
St. John's, Nfld., 20
Santander, 50
Toronto, 510
Valparaiso, 10
E. London, 40

**Sodium Bichromate—**

Barcelona, 1 t. 4 c. 1 q.

**Sodium Carbonate—**

Genoa, 70 dms.
Rotterdam, 50 brls.

**Sodium Chlorate—**

New York, 130 kgs.

**Sodium Silicate—**

Barcelona, 135 brls.
Colborne, 10
Galatz, 10
Sydney, 18
Volo, 10

**Sulphur—**

Montreal, 10 t. 1 c. 1 q.
New York, 60
Boston, 50 2
Flor de Maria, 1
Para, 1 11 3
Madras, 1 10
Halifax, 4 3
Victoria, B.C., 3
St. John's, N.B., 5 2

**Sulphuric Acid—**

Rio de Janeiro, 15 c.

**Superphosphate—**

Philadelphia, 500 t. £
Grand Canary, 10 c.
Coosaw, 2,350 15
Valencia, 100 19 2 q.

**Tallow—**

Bilbao, 59 brls.
Manilla, 3 cks.
Santander, 42

**Tar—**

Alexandria, 4 cks.
Bathurst, 5
New York, 50 brls.
St. John's, Nfld., 4¼ t.
Sierra Leone, 10

**Tartaric Acid—**

Valparaiso, 9 c. 1 q.

**Turpentine—**

Barbadoes, 2 dms.
Bremerhaven, 12 brls.

**Varnish—**

Genoa, 10 dms.
Manilla, 16 cs.
Bari, 1
Bombay, 5
Catania, 3
Fayal, 1
Genoa, 2 15 brls.
Naples, 3
Philadelphia, 1 ck.

**Lead—**
rst, 2 cks.
**hloride—**
ay, 10 t. 16 c. 1 q. £157
, 1 5 3 25
**Vhite—**
, 5 cks.

## HULL.

*k ending November 5th.*

—
y, 250 kgs.
—
nagen, 7 cks.
—
15 cks.
—
ania, 1 ck.
, 24
**Soda—**
17 dms.
dam, 20
412
6
**als** *(otherwise undescribed)*
p, 15 cks. 31 cs. 10 pkgs.
dam, 3
, 28 pks.
y, 480 50 kgs. 166 dms.
nagen, 21 5 pkgs.
ania, 12 26 cs. 10 pks.
g, 4
burg, 30 85 pkgs.
rg, 4 138
gen, 21
berg, 7
hee, 456
40
a, 20
ork, 50
o, 20
dam, 2 110 10
12 100
ersburg, 2 30
olm, 12 1 8 pks.
, 32 18
**Clay—**
16 cks.
**Sulphate—**
ania, 1 ck.
**seed Oil—**
p, 521 c.
dam, 202
, 17
192
g, 310
burg, 50
rg, 2,386
dam, 1,476
olm, 170
703
, 402
**te—**
nd, 197 brls.
**ffs** *(otherwise undescribed)*
7 cks.
nia, 130 bgs. 1 cs.
rg, 2
ork, 15 dms.
ersburg, 20 5
1
**l Oil—**
p, 3 c.
, 184
agen, 51
nia, 203
172
rg, 24
28
berg, 260
hee, 38
ter, 25
—
c, 10 t.
rg, 89 bgs.
283
-
dam, 18 cks.
, 203 kgs.
**s' Colours—**
, 24 cks.
dam, 1 cs.
, 4 1
5
, 15 128 1 dm.
agen, 10 2 30 3 pkgs.
nia, 1
t, 1
g, 1

Ghent, 16
Gothenburg, 3
Hamburg, 4
Hayti, 14
New York, 233
Rotterdam, 5 1
St. Petersburg, 111 2
Stockholm, 4
Stettin, 18 5 dms.
Trieste, 12
**Pitch—**
Antwerp, 80 t.
Arendal, 10 cks.
Bombay, 1
Copenhagen, 26
Dunkirk, 183
Flushing, 160
**Sheep Dip—**
Pt. Said, 30 bls.
**Size—**
Flushing, 32 cks.
**Soap—**
Christiania, 1 cs.
**Tallow—**
Gothenburg, 10 cks.
**Tar—**
Antwerp, 1 ck.
Amsterdam, 6
Bombay, 5 dms.
Flushing, 4 cs.
Hamburg, 2
Libau, 50
**Varnish—**
Antwerp, 1 ck. 2 cs. 1 pkg.
Bergen, 5
Copenhagen, 1
Hamburg, 10 12
Harlingen, 5
Kurrachee, 6
Stettin, 4

## GLASGOW.

*Week ending November 10th.*

**Acid—**
Rangoon, £23
**Alum—**
Quebec, 14 t. 15¼ c. £70
**Ammonium Sulphate—**
Bordeaux, 50 t. 5¾ c. £553
Java, 62 12½ 750
Valencia, 136 8¾ 1,385
**Benzol—**
Rotterdam, 20 pns. 38 dms. £525
Dieppe, 99 brls. 245
**Bichrome—**
Oporto, 15¼ c. £35
**Borax—**
Christiania, 5½ c. £8
Montreal, 1 t. 7¼ 38
**Chemicals** *(otherwise undescribed)*
Straits, 1¾ t. £30
**Colours—**
Montreal, 7 t. 8½ c. £164
Chili, 1 6¼ £49. 10s.
Java, 2 10 33
**Dyestuffs—**
**Extracts**
Montreal, 8 t. ½ c. £225
,, 202
Quebec, 34
**Fustic Extract**
Montreal, £24. 8s.
Quebec, £80
**Lead Acetate—**
Quebec, 1 t. 3 c. £24. 14s.
**Linseed Oil—**
Cape Colony, 19¼ c. £26. 16s.
Natal, 15¾ £20
Mauritius, 262 glns. 34
Alexandria, 3 t. 15¾ 78
Montreal, 5 3½ 90
Guayaquil, 202½ 20
Adelaide, 23 18½ 290
**Litharge—**
Montreal, 8 t. 18½ c. £128
Quebec, 8 ½ 120
**Magnesium Sulphate—**
Sydney, £53
,, 2 t. 11 c. 22
**Paint—**
Hong Kong, 1 t. 10¾ c. £30. 15s.
Cape Colony, 6 2¾ £135
Natal, 193
Mauritius, 11 3¼ 118
Alexandria, 6 8¼ 104
Chili, 19 12¼ 331
Calcutta, 344
New York, 400
Calcutta, 1 14 34

**Painters' Colours—**
Penang, 2 t. 17¼ c. £50
Cape Colony, 2 14¼ 54
,, £28. 12s.
Mauritius, 5 2½ £74
Calcutta, 39
Rangoon, 10 2¼ 129
Rotterdam, 5 dms. 4
B. Ayres, 153
Sydney, 10 10½ 260
**Paraffin Wax—**
Hiogo, 18 t. 13½ c. £486
Cape Colony, 4 15 175
Constantinople, 1 5¼ 40
**Pitch—**
La Rochelle, 884 t. 7 c. £1,188
Oporto, 100 15 80
New York, 137¾ 280
Amsterdam, 126 189
Dieppe, 460 680
**Plumbago—**
B. Ayres, 1 t. 3¾ c. £32
**Potassium Bichromate—**
Quebec, 5 t. 3¼ c. £190
**Potassium Prussiate—**
Quebec, 6 t. 6¼ c. £310
**Saltpetre—**
Rotterdam, 10 c. £10
**Soap—**
Adelaide, 1¾ t. £30
Rangoon, 1 19¼ c. £22. 12s.
**Soda Salts—**
Christiania, 1 ck. £9
**Sodium Bichromate—**
Montreal, 2 t. 12¼ c. £85
**Sodium Bisulphate—**
Montreal, 1 t. 10¾ c. £25
**Sulphuric Acid—**
Rangoon, 27 t. 9 c. £216
**Tallow—**
Rotterdam, 4 t. 10 c. £130
**Tar—**
Calcutta, £247
Rangoon, 180
Straits, 52
**Tar Oil—**
Alexandria, 19¾ c. £30
**Turpentine—**
Penang, 250 glns. £26
Calcutta, 26
**Varnish—**
Cape Colony, 10½ c. £47
Calcutta, 59
Rotterdam, 1 dm. 16s. 6d.
**White Lead—**
Cape Colony, 4 t. 11 c. £94
Montreal, 12 10½ 216
Chili, 2 4½ 42

## TYNE.

*Week ending November 5th.*

**Alkali—**
Christiania, 7 c.
Riga, 44 t. 11
**Anthracene—**
Rotterdam, 24 t. 4 c.
**Antimony—**
Hamburg, 1 t.
St. Petersburg, 10
**Barium Binoxide—**
Dunkirk, 8 t. 17 c.
**Barium Hydrate—**
Ancona, 58 t. 5 c.
**Barytes—**
Hamburg, 156 t. 8 c.
St. Petersburg, 136 10
**Bleaching Powder—**
Riga, 47 t. 17 c.
Hamburg, 90 5
Antwerp, 2 1
Copenhagen, 24 18
Rotterdam, 14
Odessa, 5 17
St. Petersburg, 439 14
Drontheim, 10 1
**Caustic Soda—**
Riga, 65 t. 2 c.
Hamburg, 96
Aarhuus, 1 4
Copenhagen, 1 9
Rotterdam, 12 3
Odessa, 54 4
St. Petersburg, 70 5
Gothenburg, 4 19
Braila, 7 16

**Colours—**
Rotterdam, 19 c.
**Copperas—**
Alexandria, 21 t. 6 c.
Copenhagen, 6 11
**Litharge—**
Riga, 3 t. 10 c.
Antwerp, 11
Copenhagen, 8
Riga, 1 7
St. Petersburg, 5 8
**Magnesia—**
Hamburg, 2 c.
Christiania, 2 lbs.
**Naphthalene—**
Hamburg, 1 t.
**Paint—**
Hamburg, 4 c.
Antwerp, 16
Christiania, 5
Bergen, 1 t. 4
**Pitch—**
Riga, 50 t.
**Soda—**
Odense, 10 t. 9 c.
Nakskov, 3 8
Svendborg, 17 3
Rotterdam, 16 14
Gothenburg, 5 5
Drontheim, 4 16
**Soda Ash—**
Christiania, 2 t. 1 c.
Aarhuus, 2 11
Konigsberg, 105 14
Gothenburg, 15 5
**Sodium Hyposulphite—**
Rotterdam, 5 t. 5 c.
**Sodium Sulphate—**
Gothenburg, 9 t. 17 c.
Rotterdam, 10
**Sulphur—**
Oscarshamn, 215 t.
Riga, 170
Christiania, 10
Rotterdam, 10
Gothenburg, 50
**Tallow—**
Hamburg, 1 t. 17 c.
**Tar—**
Riga, 102 t.
**Turpentine—**
Antwerp, ½ c.
**White Lead—**
Riga, 2 t. 10 c.

## GRIMSBY.

*Week ending October 29th.*

**Chemicals** *(otherwise undescribed)*
Dieppe, 95 pkgs.
Hamburg, 22 cks.
**Coal Products** *(otherwise undes.)*
Dieppe, 208 cks.
**Dyestuffs** *(otherwise undescribed)*
Dieppe, 10 cks. 32 bgs.

## GOOLE.

*Week ending October 26th.*

**Benzol—**
Ghent, 40 dms.
Rotterdam, 286 cks.
**Bleaching Powder—**
Antwerp, 15 cks.
Dunkirk, 139
Rotterdam, 7
**Chemicals** *(otherwise undescribed)*
Antwerp, 2 cks.
Ghent, 14
Hamburg, 34
Rotterdam, 3
**Coal Products** *(otherwise undesc'd.)*
Ghent, 11 cks.
**Dyestuffs** *(otherwise undescribed)*
Boulogne, 2 cks.
Ghent, 1
Hamburg, 20
**Manure—**
Antwerp, 200 bgs.
Boulogne, 49
Ostend, 176
**Pitch—**
Antwerp, 150 t.

# PRICES CURRENT.

WEDNESDAY, Nov. 16th, 1892.

PREPARED BY HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

*The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids :—** | | | | |
| Acetic, 25 %, and 40 % | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | | 50/- | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3¾ |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 %) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 10 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 1 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 10 | 2 | 6 |
| ,, ,, (grey) Hull | ,, | 10 | 2 | 6 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6 |
| Aniline Salt ,, | ,, | 0 | 0 | 5⅞ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 3 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes :—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8 |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 0 |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 7 |
| ,, 50/90 ,, | ,, | 0 | 1 | 3 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 4⅞ |
| ,, (crude 60°) | per gallon | 0 | 1 | 5 |
| Creosote (ordinary) | ,, | 0 | 0 | 1½ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 0 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 1 | 0 |
| Coke-oven Oils (crude) | ,, | 0 | 1 | 1 |
| Copper | per ton | 46 | 12 | 6 |
| ,, Sulphate | ,, | 15 | 0 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 15 | 0 |
| ,, Litharge Flake (ex ship) | ,, | 13 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| Nitrate | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 6 | 5 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 3 | 9 |
| ,, ,, Miscible, 60° O.P. | ,, | 0 | 4 | 7½ |
| **Oils :—** | | | | |
| Cotton-seed | per ton | 18 | 10 | 0 |
| Linseed | ,, | 18 | 10 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4⅝ |
| ,, American | ,, | 0 | 0 | 5⅝ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 12 | 6 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 | 0 |
| Silver (metal) | per oz. | 0 | 3 | 2¼ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 2 | 6 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 5 | 15 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 18 | 0 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 15 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Borate (Borax) | net, per ton | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¼ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) net pr. ton (10 ton lots) | | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) ,, ,, ,, (10 ton lots) | | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) ,, ,, ,, (10 ton lots) | | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) ,, ,, ,, (10 ton lots) | | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) ,, (10 ton lots) | | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 10 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 10½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¾ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 12 | 6 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7¼ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7½ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone : Best Quality (nominal) | ,, | 4 | 12 | 6 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 97 | 10 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 18 | 15 | 6 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# CHEMICAL TRADE JOURNAL

AND

## OIL, PAINT and COLOUR REVIEW.

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## ATE ADVERTISEMENTS.

SULPHURIC ACID.

THE Directors of the Sunderland Gas Company are prepared to receive TENDERS for about 500 tons of SULPHURIC ACID r the manufacture of Sulphate of Ammonia, to be delivered free in Tank-Trucks at eir Works, Hendon and Ayres Quay, Sunderland, during 1893. Both Stations are nected with the North-Eastern Railway.

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J. H. Cox,
Secretary and Manager.

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THE Merthyr Tydfil Gas Company are prepared to consider OFFERS for the purchase of about 12 tons more or less of LPHATE OF AMMONIA.

The highest or any offer not necessarily accepted.

Offers must be received not later than the 6th prox., and must be endorsed ulphate," and addressed to E. B. Evans, Esq., J.P., Chairman of the Committee Directors.

amples and particulars will be supplied on application.

JOHN L. COCKER,
Manager and Secretary.

as Offices: Gas-Works, Merthyr Tydfil, Glamorganshire,
November 18, 1892.

## Notices.

All communications for the *Chemical Trade Journal* should be ressed, and Cheques and Post Office Orders made payable to—

**DAVIS BROS., 32, Blackfriars Street, MANCHESTER.**

Our Registered Telegraphic Address is—

**"Expert, Manchester."**

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dvertisements intended for insertion in the current week's issue ld reach the office by **Wednesday morning** at the latest.

## THE NEW ARBITRATION CHAMBER.

ARBITRATION, in a suitable form, has been the keynote of our remarks in connection with the results of legal proceedings in business matters, on several occasions in the past.

The peculiar nature of many of the cases which arise when the chemical and allied industries are concerned has shewn time over time that no real satisfaction is obtained by litigation, since very often the means defeat the end.

The wants of manufacturers in relation to such matters have been fully described when discussing in these columns the advantages offered to manufacturers by the establishment of a Commercial Court, and need not be recapitulated; but we then suggested that many might deem arbitration preferable to the Law in any form.

The opportunity for those who are of such opinion to "taste and see" was on Wednesday last, 23rd inst., at length afforded, for on that day a Chamber of Arbitration was opened in London for the first time.

It has been customary in cases involving the discussion of technical points for the Courts to refer such cases to special arbitration by official referees, but the expensiveness of the proceeding has caused it to be adopted only as a last resource, and one to be if possible studiously shunned.

The new Chamber has been formed with a view to providing the means for the cheap, effective, and speedy arbitration of all business disputes, and grievances which are of such a trivial nature as to never lead to litigation, but which are, all the same, irritating and conducive to bad feeling.

There is nothing very startling in the establishment of such a Chamber, and when we come to look at what has been done in the matter, in France, Germany, Austria, and America, the wonder rather seems to be why we have been so long in making the inauguration of a Chamber of Arbitration *un fait accompli*.

There is little doubt, we think, that such a Chamber is wanted or will be successful in prosecuting its aims, for it will perhaps be remembered that in the year of 1888 the Committee representing the London Corporation and Chamber of Commerce (who by the way have taken the initiative in the matter) made a canvass of the firms in London, with the result that there was a large majority, of about ninety per cent. we believe, in favour of the idea of establishing such a Chamber. It has now been established, and already over one thousand applications for the appointment of arbitrators have been made.

The conditions under which this Chamber may be used are briefly these:—The Chamber is open to all, but when the form of submission has been voluntarily signed, neither party can withdraw without the consent of the other. The proceedings will be of a private and confidential nature, only the witnesses and officials being allowed to be present during the hearing, though exceptions will be made when it is the express

wish of both parties that it should be otherwise. There are about a thousand arbitrators, who will be appointed by the Corporation. Each arbitrator will be entitled to a fee of two guineas for the first hour and one for each subsequent hour, and the Chamber will also make a charge of one guinea in each case. Where more than one arbitrator is desired, and legal and expert advice employed, the cost will of course be increased proportionately. Several cases will be heard at once, and punctuality will be an essential on both sides.

This certainly bids fair, and there is much less likelihood of time being wasted by an arbiter whose fee is but small and whose own time as precious, and perhaps in some cases more so, than that of those who have had recourse to arbitration.

At present it is impossible to speak of the success of the Chamber in matters chemical, but we shall watch for the appearance of such cases, and trust that the first may be one in which the disputants will be willing to admit others who are not directly connected with the proceedings, and thus enable us to speak further as to the suitability of the Chamber for those who at times find their business relations overstrained, and desire someone *pleno jure* to restore the amicable feeling which formerly existed.

## THE WATER SUPPLY OF LONDON.

THE Royal Commission on the London Water Supply resumed its sittings at Northumberland-buildings, Charing Cross, on Tuesday of last week. Lord Balfour of Burleigh, presided, the other commissioners present being Sir A. Geikie, Professor Dewar, Dr. Ogle, Mr. G. H. Hill, and Mr. J. Mansergh, with Mr. Francis Gaskell, secretary.

Dr. William Odling, F.R.S., stated that for the last 20 years he had been professor of chemistry at Oxford University, had acted as medical officer of health for Lambeth, and for upwards of 25 years had been concerned in questions of water supply, being engaged with Dr. Frankland and latterly with Mr. Crookes and the late Dr. Tidy, under instructions of the water companies, in making examinations of the river-derived water supply of London. As regarded colour the river water was habitually good, being better in that respect than the filtered Severn water and the Loch Katrine water. As to turbidity, the water generally came in bright, but sometimes it happened that the filtration had not been effective, and in 12 cases out of 23,000 samples it might be considered turbid. More often it was slightly turbid. It varied a little in regard to hardness, the Thames supply being of between 14 and 17 deg., generally less in summer than in winter; the New River supply was substantially the same in respect to hardness as the Thames; the East London supply was to an insignificant extent harder; and the Kent supply was of about 20 deg. of hardness. Personally, he should be very well content if the river supply were somewhat less hard, but with his experience of the supply to London and of much more hard supplies, he could not say that its hardness rendered it an unfit supply. Taking the Registrar-General's tables, he said that they established the steadily decreasing death-rate from zymotic, and especially from typhoid, disease. In 1869, 1870, and 1871 there was an appreciable outbreak of typhoid at a good many of the upper river towns—at Chertsey, Oxford (which at that time discharged its sewage untreated into the Thames), Reading, Abingdon, and Eton, and in the Lea basin at Ware and Hertford, but there was no perceptible increase in the typhoid rate in London.

Lord Balfour of Burleigh.—Do you put it before us that no degree of danger is imparted to water as delivered by the companies by such an outbreak of fever in the upper reaches of the valley as you have indicated?

The witness.—There was no increase noticeable. In 1885 there was again an outbreak of typhoid fever at Chertsey, and that was accompanied by a steadily diminishing death-rate from typhoid in London. At Chertsey and Oxford the sewage went raw into the river at the time of the outbreak, but at Reading he believed it was treated. Most of the towns on the Thames, representing a population of probably half a million, had ceased to discharge untreated sewage into the rivers; the only two places of any importance that he knew of which continued to so being Staines and Chertsey. Referring to the extreme dilution the minute proportion of any polluting matter which still found its into the Thames, that, he said, brought into question very much had been called the sentimental objection, which, he considered, had no substantial foundation. People had an idea that sewage luted the river. But the minute proportion of any addition of that supposing it to remain unchanged (which was making a very supposition, because he would adduce evidence to show that i undergo a very rapid change), deprived it of any danger. It was a question of dilution, and when they considered that in Thames, from Hampton onwards, there were 30,000,000,000 40,000,000,000, or 50,000,000,000 gallons, they saw that the disch here and there of minute quantities of sewage relatively were perfectly insignificant. As regards the chemical part of his evide the witness put before the Commission that the smallness of the org matter in the London water supply as compared with that supplie other towns was favourable to London, the average amount bei quarter of a grain per gallon, substantially the same as in the L Katrine water, and in summer habitually less. Describing the re of analyses of water at Thames Ditton and Lechlade, he said the org carbon in the Lechlade water amounted to ·303 (as a mean o analyses) in 100,000 gallons, whereas the amount in the Ham water was ·164 in 100,000, the *maximum* results at Lechlade b ·353, and at Hampton ·208. Other determinations were mad organic nitrogen, oxygen required for oxidation, chlorine, and solids, and the several results were in complete accordance with t of the organic carbon. The same results were brought out by anal made by Mr. Dibdin for the County Council, who found ·28 organic carbon at Lechdale and ·19 at Hampton. Dealing with question of the oxidation of the water he said that the weight of ox in 100,000,000 gallons would be just under four tons, and accordi the weight of oxygen in a mile of river water at Molesey woul about two tons. It was recognised that oxygen had the power to up or destroy organic matter, and, roughly speaking, it would de about four-fifths of its weight of organic matter. The question whether the oxygen in the Thames water to that extent did act oxydize and destroy the fouling matter or not. That question had examined by a great number of chemists in succession, and all, the exception of Dr. Frankland, had come to the conclusion that was a very substantial and enormous amount of oxidation effect the water.

In reply to Professor Dewar, witness said he considered tha storage of the flood water and its subsequent filtration would pro as good water as that now in use. He would not recommend the of any water that had not been subjected to sand filtration lik London water, except in the case of deep well waters which had already filtered naturally.

Mr. Crookes, F.R.S., gave the results of analyses which he had ducted with upland surface water as compared with good well w from which he found that the Thames water was exceedingly good that the organic matter had slightly diminished as a whole in r years. He did not consider that flood water impounded in st reservoirs would be deteriorated. His experience was that the f in the Thames had no appreciable effect upon the water supp London, and that filtration as adopted was amply capable of de with those variations. He also produced comparative tables o quantity of bacteria in water, in air, and in ordinary articles of fo show that people need not be afraid of the comparatively small qua of bacteria in water.

Professor W. R. Smith, medical officer of health and public an for Woolwich, said he had large experience in examination of wa He considered the waters of the Thames and Lea to be chemi pure. Though some sewage found its way into the Thames, it removed by various processes, mainly by oxidation, which was gr facilitated by the dilution which took place, by subsidence, and by purifying action of vegetable and fish life to be found in the w owing to contamination by sewage from districts such as Chertsey Staines, organisms must have been introduced into the Thames, bu the filtered water he could find no trace of them.

Dr. Percy Frankland submitted to the Commission comparis analyses of filtered water from the Thames, from the Lea, and Loch Katrine. He showed that the organic matter contained in was about the same in quality; or, if anything, rather less in the water than in that from the other sources. In the case of the L Katrine water, the organic matter was exclusively of vegetable or whilst in the London water there was some amount of animal ma He had found micro-organisms in London filtered water, which he not attribute to defective filtration, but to post-filtration sources, ne the mains nor the filter beds themselves having been sterilized.

In summarising the remainder of its report of the proceeding *Times* says: Mr. W. Hunter, C.E., a director of the Grand Jun Company, submitted a scheme he had prepared for obtaining fu supplies from the Thames by intakes, pumping stations, and rese betw een Wraysbury and Hampton. Mr. Deacon, C.E., and Binnie, engineer to the London County Council, subsequently expr the opinion that this scheme was preferable to that of the Thames servators for the construction of storage reservoirs in the Upper Th Valley. The Commission then adjourned till December 16th.

## MINING AND MANUFACTURING ASBESTOS.

An interesting paper was read by Mr. J. A. Fisher, the general manager of the United Asbestos Company, Limited, before the Institute of Marine Engineers at one of their earlier meetings this year on "Mining, manufacturing and uses of Asbestos."

The author first reviewed the ancient history of asbestos, and then proceeded to describe its occurrence and the nature of the deposits.

Asbestos, he said, had been found in all quarters of the globe, and there was at the offices of the Company with which he was connected, a large collection of interesting specimens, which come from Italy, Canada, Newfoundland, the United States, Southern and Central America, China, Japan, Australia, Spain, Portugal, Hungary, Germany, Russia, the Cape and Central Africa. There were, however, two kinds of asbestos suitable for commercial purposes, namely, the "Italian" and "Canadian" varieties. These possess the properties of infusibility, tensile strength, fineness and elasticity which are so essential to manufacturers and the users of asbestos.

### ITALIAN ASBESTOS.

The mining of asbestos dates back to about the beginning of this century, for, some ninety years since an attempt was made to make asbestos cloth in Northern Italy, but it was not till 1866 that concessions were obtained to work the mines in Italy. The three chief places from whence Italian asbestos is obtained are the Valley of Susa, near the Mont Cenis tunnel, and the Aosta Valley, near Ivrea. The asbestos from the latter valley is different to that obtained from the Valley of Susa, being what is known as "Grey Fibre," possessing a soapy feel, and being of long fibre and strong. The third and most important district is the Valtellina, in Lombardy.

### CANADIAN ASBESTOS.

Canadian asbestos is, according to Dr. Ellis, totally different to the Italian, which belongs to the hornblende group of minerals, while the Canadian is not pure asbestos, but a serpentine rock called chrysotile. Dr. Ellis also avers that the rock carrying the marketable asbestos is generally a serpentine of some shade of green on fresh fracture, usually a greyish green, in which are contained numerous small particles of iron, both magnetic and chromic, more usually the former. This fact is borne out by the author's own observations. Serpentines that have a black, hard, chippy aspect do not promise well. In the asbestos-bearing rock proper the veins of asbestos are seen, without any special arrangement, intersecting the mass of the rock generally in every direction. In size they range from mere threads sometimes close together, as in the specimen shown, to a thickness of one to two inches, and, very occasionally, three to four inches. The asbestos from these larger sized veins, provided it contains no serious impurities, is classed as grade No. 1, and is used for spinning and weaving; the shorter stuff and such as contains impurities, is classed as No. 2 and No. 3 respectively. These latter grades are used principally in the United States for millboard, boiler and pipe covering, and other purposes.

The author next described how the two rival companies, which were subsequently merged into what is now the United Asbestos Co., Ltd., first came into existence. The competition between the two was very keen, until it ceased in 1880, when the joint company was established.

Proceeding, Mr. Fisher briefly outlined the process of manufacture as carried on by his company. The works, he said, were divided into several departments. First there is the Sorting and Opening Department, where the crude asbestos is dealt with. The blocks of fibre or "rock," as seen here, are crushed and opened up in special machines in such a way as not to destroy the fibre, and are passed thence to "shaking" machines, where the long fibre is separated from the short, and particles of rock removed. The long fibre suitable for spinning into thread is then taken into the Carding and Condensing Department, and the short to the Millboard and Boiler Covering Departments. The treatment of the long fibre in the Carding and Condensing Department is very similar to that in a textile factory, but its appearance would be scarcely encouraging to one who had been accustomed to wool or cotton. These latter staples, examined under the microscope, exhibit a notched or serrated appearance, which explains the ready way the material clings together when twisted. The peculiar nature of asbestos presents difficulties which are rendered more evident when its behaviour in the machines is watched, but these difficulties are overcome by special appliances attached to the condensing machines. As the fibre comes from the condensers in the form of sliver or condensed thread without any twist, it lightly folds itself in cans placed there to receive it, and is then taken to the Spinning and Doubling Department, where it is twisted into threads of every degree of fineness required. The thread then passes to the Weaving and Braiding Department, where it is made into various forms of yarn packings, also into tapes and cloth. The cloth is then taken to the India Rubber Department, where it is proofed and made into what is known as asbestos and India rubber woven sheeting, tape and rings for steam and other joints.

### MANUFACTURE OF MILLBOARD.

The manufacture of asbestos millboard is somewhat similiar to that of ordinary cardboard. After some preliminary treatment, the asbestos fibre is run with water into the tanks of beating engines. Each of these tanks is provided with a rotating beater, which maintains a thorough circulation, taking up the fibre, opening and drawing it out, and then sending it forward to be soaked for a time until it comes round again to the beater. The binding ingredients are here added and thoroughly mixed with the fibre, when the pulp is passed into the vat of the millboard or paper machine, where it is kept in a state of agitation until gradually drawn off. The water passes through a fine wire gauze on a revolving cylinder, leaving a thin coating of pulp on the cylinder. This is then transferred by means of an endless band to a second rotating cylinder, where it gradually accumulates until the desired thickness has been reached. It is finally cut across and removed in the form of a square sheet of millboard. As the sheets contain a large percentage of moisture, they are next placed between sheets of zinc and passed under hydraulic pressure and then hung in drying rooms. They are then again pressed and their edges trimmed, when their manufacture is complete.

In this process the chemical composition of the asbestos undergoes little if any change, and excepting the binding materials which have been added, chemical analysis shows the composition of the best millboards to be practically the same as the fibre from which they are made. It will be observed that nothing would be easier than to adulterate millboard pulp while in the beating engines, and large quantities of china clay and other ingredients are used by some manufacturers in this process.

### BOILER COVERING.

Here the short fibres and powder are worked up. The real secret of making successful boiler coverings lies, in the opinion of the author, who has had many years experience in the matter, in the kind of asbestos used, and also in the composition of the ingredients used for lightening and binding the mixture. It must be thoroughly non-conducting, light, easily applied and easily removed, and these were the objects at which his company had aimed, and with a very fair share of success, he thought. Asbestos paint was another useful application, being employed as a protection against fire. Numberless instances had occurred where fires had unmistakably been prevented from spreading owing to the use of this paint, one or two striking instances having been witnessed in connection with the Fisheries, Health and Inventions Exhibitions in London, where this paint had been extensively employed. In conclusion, Mr. Foster said twelve years ago only three or four kinds of goods were made; now over a hundred varieties are produced. Asbestos twenty-five years ago was practically only known in the laboratory of the chemist or mineralogist. It now finds its way in one form or another into almost every workshop where steam is employed, and it seems likely that its use will continue to extend.

## THE LABOUR COMMISSION.

### THE CHEMICAL TRADE.

On Tuesday last the Textile Section of this Commission sat under the presidency of Mr. Mundella. After hearing a deputation from the building trades, the Commission proceeded to hear witnesses representing the alkali trade in reply to evidence already tendered. The first was Mr. Brock, chairman of the United Alkali Company, who was accompanied by Mr. T. W. Stuart, a district manager, and some sixteen men in the employ of the Union in various parts of the country. Mr. Brock stated that the Union embraced some fifty works, employed some 15,000 men, and paid £18,000. a week in wages. The capital was eight and a half millions. It was not a syndicate in the ordinary sense of the term, because the original proprietors held a considerable portion of the shares, though not the whole. About nine-tenths of the alkali works were embraced in the Union.

The Chairman: Practically you control the whole of the trade.

Mr. Brock, continuing, said he desired to offer evidence to rebut statements already made before the Commission concerning the health and circumstances of the workpeople. Sensational statements had, he said, been made about the effects of the escape of noxious gases on the workpeople's teeth. He denied them in the broad way in which they were put, and asserted generally that the health of the men in the trade was equal, as far as his observation went, to that of the average of men in other trades, and was superior to that of some, such as men engaged in flour mills.

The Chairman: It has been stated that the packing chambers into which the men go clothed in flannel and breathe through a muzzle are kept red hot?—That is simply impossible.

Your contention is that the sensational stories are not founded on fact?—That is so, and we have men here from Lancashire, Newcastle,

and Glasgow to prove it. The works are subject to the Alkali Acts and the Factory Acts, which are properly carried out. The wages are higher than they were twenty years ago, and the hours shorter. In some departments we work on shifts of eight hours.

Mr. T. W. Stuart, district manager at Newcastle, produced figures relating to the friendly society which formerly existed at Tennant's works to show that in these works—and by analogy in all works where the same operations were carried on—the rate of mortality throughout the works and in the three departments where gaseous escapes were liable to take place was slightly less than the average experience of friendly societies, and that the number of days' sickness per annum per member in the whole works was about the same as the average of friendly societies, whilst the sickness in the three departments where gaseous escapes were liable to take place was actually about 23 per cent. less than the average of friendly societies.

In answer to the Chairman, he said that work in the saltcake department had a very slight effect on the enamel of the teeth. Alcohol had an immediate effect as an antidote against certain gases, but in the long run fresh air was better. He had known men who had never tasted alcohol for years, and the company did not provide alcohol in any form except for use in cases of emergency. The average hours of the men were seventy per week.

Three of the workmen then stepped forward as witnesses. The first to give evidence was Walter Morrison, employed in the saltcake department at St. Helens. He said the work had more effect on the teeth of some men than on those of others. It caused a black scum to to gather on them, but if they were kept clean with a brush and soap a man might keep his teeth for his lifetime. He found the work healthy. He had not lost six shifts for the last six years. He earned £1. 18s. for a week of seventy hours. He had work two hours out of three.

Martin Day, employed in a bleaching department at St. Helens, said his wages was £2. 10s. a week, and the average hours six and a half to seven a day. In the very hot days he suffered sometimes, but on the whole his health did not suffer.

A man named Darlington, aged 46, of Runcorn, informed the Commission that he had not lost any teeth, that he had never been "gassed," and that his health was generally good. The teeth suffered when the men used dirty cloths as muzzles. They should be washed every day. He worked 84 hours one week and 60 the next—that was, he worked the whole seven days one week and five in the next, and his average wages were £2.

The evidence in connection with paper-mills was subsequently heard, but a review of the full evidence on the chemical and paper trades will appear next week.

## TIPS FOR TRADERS.

THE inhabitants of Guatemala, who number 65,000, are mostly well-to-do, and many are millionaires, and in consequence are desirous of purchasing those articles which are necessary for comfortable living, and are useful for facilitating business thus:—

Machinery for milling, mining, and preparing coffee and sugar are in request. There is a good field for boilers, pumps, and saw mills.

Gas Plant is unknown in the Republic, and the electric light plant only supplies the streets, making a fine opening for lighting material.

Petroleum is consumed in considerable quantities, retailing at a little over 3s. a gallon, or one dollar Guatemalan money. The temperature averages from 68° to 74° F. by day, and from 62° to 68° F. at night, the climate being very even.

Candles are made in small quantities, but there is still a good field for merchants.

Soaps of all kinds are in even greater request.

Photographic Chemicals are doubtless wanted from time to time, as there are several photographers out there who are apparently doing well.

There is also a good field for oil lamps, chandeliers, and silver-plated goods.

### TARIFF CHANGES.

There are from time to time many alterations in the customs regulations abroad, which it is as well for those trading in chemicals, paints, oils, and raw materials, to be acquainted with. The following are some of the recent changes of interest to the foregoing:—

In France, Japanese varnish, which consists of amyl acetate, methyl, alcohol, benzene, and pyroxyline, and the liquid preparation containing the first three mentioned articles used to dilute the varnish, are dutiable at 30 francs per 100 kilos.

Mills for crushing and mixing oil colours with enamelled funnel and drain sluices, are charged an import duty of 18 francs per 100 kilos.

Matches of foreign make cannot be sold in Spain after 1st January, 1893, and their importation has been *prohibited*.

Stoppered Bottles of glass when imported into Italy are subject to a duty of 15 lire per quintal, a lire equaling 9½d. and a quintal 220·4 lbs.

Barytes Sulphate, made up with water, is dutiable at 1 lire per quintal.

Electric Lamps and their glass globes are subject respectively to a duty of 30 and 18 lire per quintal.

Dynamite and Dextrine, during the financial year 1892-3, cannot be imported into Porto Rico without special permission from the Government, while the importation of lard containing margarine, or oleomargarine and artificial or adulterated wines has been *prohibited*.

Textile Machinery for obtaining fibre from textile plants is no longer duty free as heretofore.

Salt when imported into Lagos has a duty of 5s. per ton levied on it.

### POSTAL CHANGES.

The mails for Japan and China, *via* Londonderry, Halifax, and Vancouver, will during the winter be dispatched from London, on the evenings of the following dates: December 22nd, January 19th, 1893, February 16th, and March 16th, and a day later in each case for Ireland.

Owing to quarantine restrictions the fortnightly mails from Liverpool to South America will not touch at Rio de Janeiro as usual, and no mails for Brazil will be sent by these steamers till further notice.

## Official Memoranda.

*(From the Board of Trade Journal.)*

### COAL IN THE NETHERLANDS.

The *Journal de la Chambre de Commerce de Constantinople* for the 24th September says that the Netherlands, which is indebted to foreign countries for all the coal that she consumes, is—if the anticipations and information supplied by M. F. Buttgenbach are true—about to supply from her own territory a portion at least of the combustibles that she needs.

Examinations made in the extension of the *Rhenish basin* have given very good results; the presence of coal at depths of 30 to 150 metres in beds of 80 to 1 metre 50 centimetres in thickness has been ascertained.

The territory in which the coal has just been found will be shortly connected with the railways, by reason of the completion of a new line starting from Herzogenrath. Moreover, it is a few kilometres distance from the Meuse and several canals.

The means of transport will not be lacking, if a new centre of coal production results from the fortunate discoveries made and from the survey which will not fail to be made of the developments and importance of the beds met with.

If the new coal basin is, as is believed, the continuation of a known and worked basin, the surveys will be facilitated and guided by the particulars of the basin now working.

M. F. Buttgenbach hopes that the development of the new mines will, within a certain period, free the Netherlands from a portion of her imports of coal, which cost not less than £2,000,000. per annum.

### A NEW OIL SEED.

Amongst the numerous oil seeds that are constantly being received at Kew, for the purpose of naming, from Liverpool brokers and seed crushers, were some that made their first appearance at Liverpool from the West Coast of Africa in February, 1891. They appear to have attracted a considerable amount of attention, judging from the fact that they were received at Kew from several different brokers about the same time, and a month later, in March, 1891, samples were also received from Germany. Quite recently the same seeds have again appeared, having been sent to Kew by a seed-crushing firm at East Greenwich. The interest attached to them from a commercial point of view is probably due to the quantity of oil their kernels seem to contain, rather than to its quality or properties, for up to the present these appear not to have been tested; they may, however, become an important source both of oil and oil-cake, for though nothing definitely is known as to the plant producing them, inasmuch as no other material than the fruits

themselves, without the fleshy coverings, have been received at Kew, it is clear from these alone that the plant belongs to the natural order *Olacineæ*, and probably to the genus *Heisteria*. The fruits as received are hard and woody, requiring some force to break them; they are ovate in form, about 1 in. long and ¾ in. in diameter, of a dull earthy brown colour, marked by irregular longitudinal striations, the inside being filled with a whitish, fleshy, and very oleaginous kernel. From the fact that the plants constituting this order are free from any poisonous or deleterious properties, and that the fruits of some of the species are edible, it may be inferred that this new oil seed may prove of some commercial value. No locality has been given whence the seeds have been obtained, the only information on that head being, as before stated, that they were imported from the West Coast of Africa.

## NEW CUSTOMS TARIFF OF PORTO RICO.

The following is an abstract of the official statement showing the rates of the import duties leviable in Porto Rico under the new general and special tariffs.

N.B.—A peso equals 4s. 2d.

| Classification of Articles. | General Tariff. | Special Tariff. | Amount of Rebate applicable to Imports from the United States. |
|---|---|---|---|
| CLASS I. | Pes. cts. | Pes. cts. | |
| *Group 3.—Bituminous Shale, Bitumen, and Bituminous Products.* | | | |
| Pitch, tar, creosote crude, minerals, asphalte, bitumen, and shale | Per 100 kilogs. 0·25 | Per 100 kilogs. 0·15 | Free. |
| Naphtha, vaseline, crude natural petroleum, and crude oils derived from shale | 0·60 | 0·55 | Free. |
| Benzine, gasoline, petroleum, and other refined oils | 3·15 | 3·10 | 25 per cent. |
| CLASS III. | | | |
| *Group 1.—Simple Drugs.* | | | |
| Cocoa-nut and palm oil, and other heavy oils | 6·00 | 5·25 | 25 per cent. |
| Other vegetable oils, excepting olive oil | 10·00 | 9·70 | 25 per cent. |
| Spirits of turpentine | 7·00 | 6·00 | Free. |
| Dyewoods and tannery bark | 0·50 | 0·40 | Free. |
| Seeds of rape, of flax, and other oleaginous seeds, including coprah or cocoa-nut | 3·50 | 3·00 | 25 per cent. |
| Resin, pitch, tar, and similar products | 1·10 | 0·90 | 25 per cent. |
| *Group 2.—Colours, Dyes, and Varnishes.* | | | |
| Ochres and natural earths, used in painting, and clay | 0·65 | 0·55 | 25 per cent. |
| Indigo and cochineal | 27·00 | 26·20 | 25 per cent. |
| Dye extracts | 11·15 | 10·60 | 25 per cent. |
| Varnishes | 9·50 | 9·00 | 25 per cent. |
| Colours, in powder or lumps | 3·40 | 2·90 | 25 per cent. |
| Do., prepared, and inks | 7·60 | 5·95 | 25 per cent. |
| Do., made from coal and other artificial colours, and madder and its mixtures | Per kilog. 0·30 | Per kilog. 0·20 | 25 per cent. |
| *Group 3.—Chemical and Pharmaceutical Products.* | | | |
| Muriatic, nitric, and sulphuric acids | 0·55 | 0·50 | 25 per cent. |
| Natural mineral waters | Per hectol. 2·20 | Per hectol. 2·10 | Free. |
| Alkaloids and their salts | Per kilog. 12·60 | Per kilog. 12·00 | 25 per cent. |
| Alum and sulphur | Per 100 kilogs. 0·45 | Per 100 kilogs. 0·40 | 25 per cent. |
| Alkaline carbonates, barillas, caustic alkalis, and ammoniacal salts, excepting sulphate | 0·75 | 0·65 | 25 per cent. |
| Chloride of lime | 1.60 | 1·50 | 25 per cent. |
| Chloride of potash, sulphate of soda, chloride and carbonate and sulphate of magnesia | 1·65 | 1·50 | 25 per cent. |
| Chloride of sodium (common salt) | 0·50 | 0·35 | 25 per cent. |
| Glues and Albumen | 8·95 | 8·70 | 25 per cent. |
| Phosphorus | Per kilog. 0·15 | Per kilog. 0·11 | 25 per cent. |
| Nitrate of potash (saltpetre), chlorate of potash, and oxides of lead | Per 100 kilogs. 3·75 | Per 100 kilogs. 3·60 | 25 per cent. |
| Sulphate of copper and of iron, and pyrolignite of iron | 1·50 | 1·20 | 25 per cent. |
| Common soap | 3·75 | 3·0 | Free. |
| CLASS X. | | | |
| *Group 4.—Animal Products.* | | | |
| Animal fats | 1·30 | 1·20 | Free. |
| Guano and other natural manures | Free. | Free. | Free. |
| Other artificial manures, *sulphate of ammonia*, phosphate of lime, etc. | 0·05 | 0·05 | Free. |
| Other animal products not specified, unmanufactured | 1·25 | 1·05 | — |

## THE JAPANESE CAMPHOR TRADE.

The following particulars respecting the Japanese camphor trade are extracted from a recent report by the United States Consul at Osaka:—

The camphor tree, from which the resinous gum is distilled, is a species of the laurel, and is found in the provinces of Tosa, Hiuga, and Satsuma, in the south of Japan. Large groves of the trees are owned by the Japanese Government, the wood being very desirable for ship-building. The districts in which the camphor tree is found are mountainous and situated far from the sea. No reliable information can be obtained as to the cost of producing the gum before being transported in junks to Hiogo. The peasants who engage in distilling the roots and branches of the trees are said to be poor, and employ the rudest machinery.

The market value of crude camphor gum and of oil of camphor per picul (133⅓ lbs.) during the past year was as follows:—Drained, 38·25 dollars; wet, 37·00 dols.; old dry, 43·50 dols.; average, 36·50 dols.; camphor oil, 5·25 dols.

The highest and lowest prices during the same period were as follows:—Highest, 40·00 dols.; lowest, 33·00 dols.

Camphor gum is exported in tubs measuring about 6½ cubic feet; oil in kerosene tins and cases. The grades are from old dry down to new wet, and the various grades depend upon the quantity of adulteration. In oil there are two grades—white and brown.

Adulteration is practised for the most part by adding water and oil just as far as the buyer will tolerate. In some cases 20 lbs. of water will run out of a tub in 12 hours. The unadulterated article, known as the good old dry, can sometimes be bought. The only system of tests in determining value of the different qualities is by burning and by absolute spirit. The percentage of pure camphor which the crude yields when refined varies according to the quality of the crude. The average percentage of gum produced from the wood as compared with the original weight of the wood cannot be accurately ascertained here, the only foreigner known to have visited the camphor districts having declined to furnish any information on the subject.

The total exports of camphor from Hiogo during 1891 in catties of 1⅓ lbs. each amounted to 3,850,400 catties consigned to the following destinations:—Europe (countries not specified), 1,777,300 catties; London, 335,600 catties; Germany, 209,200 catties; United States, 1,277,000 catties; China, 51,900 catties; France, 199,400 catties.

As regards the manufacture of camphor the following particulars are extracted from a report by the United States Consul at Nagasaki.

Camphor is found alike on high elevations and in the valleys and lowlands. It is a hardy, vigorous, long-lived tree, and flourishes in all situations.

Many of these trees attain an enormous size. There are a number in the vicinity of Nagasaki which measure 10 and 12 feet in diameter. The ancient temple of Osuwa, at Nagasaki, is situated in a magnificent grove of many hundred grand old camphor trees, which are of great age and size, and are still beautiful and vigorous. It is stated that there are trees at other places in Kiu Shiu measuring as much as 20 feet in diameter. The body or trunk of the tree usually runs up 20 and 30 feet without limbs, then branching out in all directions, forming a well-proportioned, beautiful tree, ever green and very ornamental.

The leaf is small, elliptical in shape, slightly serrated, and of a vivid dark-green colour all the year round, except for a week or two in early

spring, when the young leaves are of a delicate, tender green. The seeds or berries grow in clusters and resemble black currants in size and appearance. The wood is used for many purposes, its fine grain rendering it especially valuble for cabinet work, while it is used also for shipbuilding. The roots make excellent knees for ships.

In the manufacture of camphor the tree is necessarily destroyed, but, by a stringent law of the land, another is planted in its stead. The simple method of manufacture employed by the natives is as follows :—

The tree is felled to the earth and cut into small pieces, or, more properly speaking, into chips

A large metal pot is partially filled with water and placed over a slow fire. A wooden tub is fitted to the top of the pot, and the chips of camphor wood are placed in this The bottom of the tub is perforated so as to permit the steam to pass up among the chips.

A steam-tight cover is fitted on the tub. From this tub a bamboo pipe leads to another tub, through which the enclosed steam, the generated camphor and oil flow. This second tub is connected in like manner with a third. The third tub is divided into two compartments, one above the other, the dividing floor being perforated with small holes, to allow the water and oil to pass to the lower compartment. The upper compartment is supplied with a layer of straw, which catches and holds the camphor in crystal in deposit as it passes to the cooling process. The camphor is then separated from the straw, packed in wooden tubs of 133⅓ lbs. each, and is ready for market.

After each boiling the water runs off through a faucet, leaving the oil, which is used by the natives for illuminating and other purposes.

# Our Foreign Trade.

*(Compiled for the* JOURNAL *from Official Sources.)*

THE following is a monthly review of the foreign trade of the United Kingdom in chemical and allied products, with the principal foreign markets; giving the amount of British manufactures imported by foreign countries, and the goods exported by them to the United Kingdom :—

GERMANY.

According to the returns of the Government Statistical Department of Foreign Trade for the month of Sept., 1892, the amounts (expressed in 100 kilos.) of the various selected articles undermentioned were as follows :—

| Class. | Imports. | Exports. |
|---|---|---|
| | 100 kil. | 100 kil. |
| Ores and cements | 3,079,303 | 3,054,853 |
| Vegetable oils, fats, etc. | 414,059 | 122,596 |
| Paper and paper goods | 27,536 | 135,860 |
| Petroleum | 650,018 | 4,547 |
| Coal and other fuel | 11,237,616 | 9,437,732 |
| Tar, pitch, etc. | 147,424 | 41,327 |

The total weight of the exports and imports for September shows a decrease as compared with the same month in 1891. The total imports for the nine months, January to September, show an increase, while the total exports for the nine months were 320,965,700 kilos. less than in the same period of 1891.

AUSTRIA-HUNGARY.

The following are the returns of the *Statische Ubersicht* for the first eight months of 1892 (January to August). In the undermentioned imports every item, with the exception of "Chemical Substances," again show an increase, while in the exports, gums and resins is the only item which shows an increase as compared with the same period in 1891. The total imports and exports as compared with the corresponding period of last year show a decrease in both cases.

| Class. | Imports. | Exports. |
|---|---|---|
| | Metric Centners. | Metric Centners. |
| Seed oil, etc. | 205,218 | 3,213 |
| Minerals | 2,822,798 | 5,043,092 |
| Dye and tanning stuffs | 304,350 | 481,319 |
| Gums and resins | 243,196 | 107,565 |
| Mineral oils, etc. | 904,481 | 14,560 |
| Chemical substances | 492,136 | 188,174 |
| Chemical products | 46,292 | 58,670 |

A Metric Centner is about 94 lbs. Avoirdupois.

ITALY.

The following are the returns for the first nine months of 1892, January to September :—

| Class. | Imports. | Exports. |
|---|---|---|
| | Lire. | Lire. |
| Chemicals, medicines, etc. | 30,422,477 | 30,269,979 |
| Colours, paints, and dyes | 18,749,170 | 7,296,116 |
| Minerals and metals | 86,830,740 | 32,802,946 |

A Lire is equivalent to 9½d.

In the imports, chemicals and colours have increased as compared with the same period in 1891, the other item, minerals, having decreased. In the exports, however, all three of the above mentioned items show a distinct increase. In regard to total imports there has been a decrease, while there has been an increase in the total exports.

INDIA.

The following is a *resumé* of the official returns published by order of the Governor-General in Council, and represents the imports of foreign merchandise into India, and the exports of Indian manufacture and produce, for the month of July, 1892 :—

*Imports :*

| Class. | Quantities. | |
|---|---|---|
| Salt | tons. | 33,218 |
| Quicksilver | lbs. | 11,475 |
| Alum | cwts. | 4,385 |
| Arsenic | cwts. | 100 |
| Sulphur | cwts. | 1,262 |
| Quinine | lbs. | 2,220 |
| Aniline and alizarine dyes | oz. | 6,898,280 |
| Mineral oils | galls. | 3,570,265 |
| Linseed oil | galls. | 5,785 |
| Gums and resins | cwts. | 2,341 |
| Manures | tons. | nil. |
| Pitch, tar and dammer | cwts. | 5,726 |
| Dynamite and other explosives | cwts. | 134 |
| Cement | cwts. | 33,948 |
| Candles | lbs. | 369,616 |
| Paints and colours | cwts. | 10,076 |
| Soap, all kinds | cwts. | 2,875 |

*Exports :*

| Class. | Quantities. | |
|---|---|---|
| Cinchona bark | lbs. | 16,000 |
| Cutch | cwts. | 17,314 |
| Indigo | cwts. | 2,238 |
| Myrabolams | cwts. | 35,271 |
| Turmeric | cwts. | 3,967 |
| Castor oil | galls. | 341,758 |
| Cocoanut oil | ,, | 3,467 |
| Borax | cwts. | 729 |
| Caoutchouc | ,, | 710 |
| Mica | ,, | 419 |
| Saltpetre | ,, | 25,972 |
| Shellac | ,, | 2,975 |
| Oil cake | ,, | 28,466 |
| Soap | ,, | 937 |

In the above mentioned, out of the sum total for each item, the following quantities were either shipped from, or sent to the U.K. :—

*Imports.*—Of salt, 27,166 tons were imported from the United Kingdom and 3,952 tons from Germany. Of quicksilver, the whole of the 11,475 lbs. were sent from the United Kingdom. Gums and resins : Of the 2,341 cwts. of gums and resins, 1,261 cwts. were resin. Of paints and colours 8,910 cwts. were sent from the United Kingdom.

N.B.—All petroleum which has its flashing point at or above 200° F., and is proved to the satisfaction of the Customs Collector to be intended to be used for the batching of jute or other fibre, or for lubricating purposes is *free of duty*.

*Exports.*—Of cutch, 7,788 cwts. were sent to the United Kingdom; of indigo, 1,752 cwts.; myrabolams, 29,977 cwts.; turmeric, 359 cwts.; castor oil, 86,986 gallons; cocoanut oil, nil; caoutchouc, 490 cwts. Of saltpetre, 12,275 cwts. were sent to the U.K., and 3,685 cwts. to U.S.A.; of shellac, 1,568 cwts. were sent to the U.K., 1,019 cwts. to the U.S.A., to France nil, and 388 cwts. to other countries.

## NOTICES.

### LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of

THE CHEMICAL TRADE JOURNAL

From

MR. JOHN HEYWOOD,
2, Amen Corner,
Paternoster Row, E.C.,

On usual trade terms.

### FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed* Money Order is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country

## Correspondence.

**** We do not hold ourselves responsible for the opinions expressed by our correspondents.*

### *ANSWERS TO CORRESPONDENTS.*

C. and R.—There are only two, and we have forwarded you their addresses.

R. J.—That which we have sent you is the most reliable for miscellaneous chemicals.

H. J. H.—Thanks for your letter. It has been sent.

L. and S.—It can be done, but the advantages are doubtful.

F. L. R.—The separation is not new, and many use it regularly in preference to the ammonium hydrate method.

L. Y. W.—It is not yet to hand, but we expect it in the course of a few days.

Inquirer.—It will be on the same date as last year, but, of course, better.

B. F. Chemical Co.—It was despatched, and must have been lost as you suggest. We have forwarded you another.

H. L. T.—Several processes have been worked on the large scale with a certain amount of success, but the colour was never good enough to enable the product to be placed on the market at a profit.

### FLASH POINT AND HEAT OF BURNING OF MINERAL OILS.

*(To the Editor of the Chemical Trade Journal.)*

Sir,—When one is constantly reading of fires and accidents from explosions of paraffin lamps it surprises me much in reading in your journal Mr. D. R. Stewart's paper upon the subject, to find Messrs. Abel and Redwood fixing the flash point so low, and thereby favouring the introduction of a foreign dangerous oil to the detriment of the home productions. Now, as this cheap oil is used mostly by the poorer and least educated class, and in cheap glass or china lamps instead of metal reservoirs, it seems more than ever the duty of Government to interfere for their protection. Is there any simple test by which householders could detect whether they are buying American or Scotch oil? Because, although one tries to obtain the best, I fear often the common and lowest-priced is sent in lieu of the Scotch oil at the higher price. If such a test could be made known in your journal it would be a boon to thousands. In your leading article on the subject you lay bare the inconsistency of the Government and their weakness, but I suppose a Government who entertains the notion of letting loose upon society dynamiters who have tried to blow up London Bridge and the Houses of Parliament, won't care much for a few hundred poor subjects being burnt to death, or some thousands of pounds worth of house property being destroyed. Do, Sir, pray keep hammering away in your journal upon the subject, until such time as reliable statistics are furnished by Parliament, and Government ignorance is removed.

Yours, etc.,
Poor Little-John.

## Trade Notes.

Civil List Pension.—A Civil List pension of £75 per annum has been granted to Mrs. Dittmar, widow of the late Mr. William Dittmar, LL.D., F.R.S., professor of chemistry in Anderson's College, Glasgow, in consideration of the distinguished services of her husband.

Overcome by Gas.—Two men, named Allcock and King, were overcome by gas fumes last Sunday night at the Nottingham Corporation Gasworks. Allcock fell into a liquor tank and was drowned, and King, who fell at the edge of the tank, was rescued in an unconscious condition.

Unlabelled Margarine.—At the Salford Police Court last week, a number of small shopkeepers were fined for neglecting to label margarine exposed for sale, in accordance with the Margarine Act. Fines were inflicted, ranging from 5s. to 40s.

Falling into a Tank of Vitriol.—A night watchman in the Ballybrough Vitriol Works, Dublin, while going his rounds last Sunday fell into a tank of vitriol. His cries brought assistance, and he was rescued, plunged into a tank of cold water, and then removed to the hospital.

Another Accident.—A shocking accident occurred this week at Flint. A man named David Jones, employed at the United Alkali Company's Works, fell into a pan of boiling caustic. He scrambled out unaided, and was conveyed home, but succumbed to his terrible injuries.

The Gas Consumption of Paris.—The number of electric lamps now used in Paris is said to be about 175,000, maintained by central stations, the energy of which corresponds with 17,500-horse power. Out of the 85,000 houses in Paris, only 20,000, or not one-quarter, are lighted by gas, the consumption of which in 1891 was 283,000,000 cubic metres.

Fearful Death at St. Helens.—Thomas O'Brien, of St. Helens, a chemical labourer, met with a terrible accident on Saturday afternoon by falling head first into a vat of boiling caustic, receiving such shocking injuries that he died next day. O'Brien, who was 33 years of age, was what is known as a caustic finisher at the Greenbank Alkali Works, belonging to the Alkali Union.

Fire at a Bury Paper Mill.—On Saturday last between ten and eleven p.m. the Woolfold Paper Mills of Messrs. Olive Bros. were found to be on fire. The fire was got under in about three hours, but not before the building, which was a two-storeyed one, had been completely gutted. The damage to the building and machinery is estimated at £1,000., and is fully covered by insurance.

Sunday School Scholars "Gassed."—At a Keighley Sunday School on Sunday morning last the hot-air apparatus got out of order, and sulphurous fumes overpowered about twenty children, some of whom are still suffering. A teacher named Ross, who exerted himself to rescue the children, was overcome, and is under medical treatment. The apparatus was fed by gas coke.

Limiting Nitrate Production.—A cablegram has been received by the Permanent Nitrate Committee stating that the agreement limiting the shipments of nitrate for January and February, 1893, has been signed. According to the estimate of the Iquique committee, 70,000 tons will be shipped during each of these months to Europe. If nitrate rises above 9s. 6d. per cwt., additional shipment may be made, but the increased shipment will not amount in all to more than 15,000 tons.

Commercial Arbitration.—The formal inauguration of the new Chamber of Arbitration or Tribunal of Commerce took place on Wednesday afternoon last at the Guildhall, London. The new tribunal has been established under the auspices of the London Chamber of Commerce, and its duties will consist in the adjustment by arbitrators of commercial disputes. The Chamber will also be available for voluntary and judical references. It was announced that the arbitrators would be elected annually, that they would have power to administer the oath, and that the Chamber would be open throughout the year. The following minute has been passed by the Council:—"The sittings of the arbitrators shall be considered private, and no person shall be admitted thereto during the hearing of a case, except the parties, their legal advisers and witnesses, provided always that any other person may be present by permission of the registrar, unless objected to by any of the parties; but such permission shall not be granted to reporters of the public press without the special request of all the parties interested in the case."

Natural Gas.—Another gas well has been recently struck by the Ontario Natural Gas Company at Ruthven, Ont. Its flow is about 10,000,000 cubic feet per day. The company is now laying pipes to convey the gas to Windsor, Walkerville, and Leamington.

More Smoke Prosecutions.—A summons against the Steam Cylinder Patent Lubricating Company, Allen-street, Lower Broughton, for causing a smoke nuisance was heard last week at the Salford Police Court, before Mr. J. Makinson, stipendiary magistrate. Mr. C. E. Thompstone, smoke inspector for the Corporation, said the furnace of the steam boiler at the defendants' works was not constructed to consume its own smoke according to the provision of the Salford Improvement Act, 1862. On the 18th October the chimney emitted dense smoke for an aggregate of seven minutes during one hour. The defendants were fined 20s. and costs. Mr. A. Holmes, deputy town clerk, appeared in support of the summons.

A Utilitarian Fad.—The worthy privates in our British army are at last to be supplied with a pocket-handkerchief, and not only that, but the Commander-in-Chief will also print upon it as much valuable information as it will hold, including directions how to treat the new rifle, and a selection of bugle-calls. Perhaps it would be as well to also print directions how to use the new handkerchief. It is to contain as much information as it will hold, but that, of course, depends on the size, with a slight extension it might be made to act as a sheet as well perhaps, and would so leave room for the addition of the National Anthem, canteen prices, etc. It will be of red colour, as a matter of course we suppose, because it is an official publication, and perhaps it will fold up and close with a little brass clasp like the familiar red instruction books for convenience when "transporting baggage."

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

Benzol remains in the same position as previously quoted, and there appears to be but little hope for a recovery in prices, which are about 1s. 6d. for 90's and 1s. 3d. for 50/90's. In anthracene it is not possible to quote the price, as nearly all makes seem for the present to be kept out of the market. Other tar products are without change.

The steady tone of the sulphate of ammonia market has been maintained, and seeing that the production is now in full flood, it is satisfactory to note that available parcels are meeting with a ready sale at current rates. A few forward sales have been negotiated at an advance of about 2s. 6d. per ton on present values; meantime the quotations at all ports remain at £10. 2s. 6d. The nitrate shipments are about half the size they were in the same month last year, and as they are likely to continue on a small scale for some time, prices should remain at least at their present level. The value on spot is 9s. 1½d. per cwt.

## MISCELLANEOUS CHEMICAL MARKET.

Trade generally has been quiet during the past week. Bleaching powder remains steady at £7. 10s. nett prompt delivery, and £7. 5s. for contracts over 1893, f.o.r. makers' works. For the latter delivery a good quantity has been booked. In soda ash there is considerable competition amongst makers for forward contracts, and large reductions in prices have been made, and particularly in 58% alkali. Nominally, for spot delivery, quotations range from 1$\frac{5}{16}$d. to 1⅜d. per degree f.o.b. Caustic soda dull, but unchanged in price, and current quotations are for 77% f.o.b. Tyne, £11. 15s.; f.o.b. Liverpool, 74%, £11. 5s.; 70%, £10. 5s.; 60%, £9. 2s. 6d.; cream, 60%, £8. 17s. 6d., ten ton lots and upwards. Soda crystals remain at £3. 9s., casks or barrels, to £2. 18s., bags. Recovered sulphur weaker at £4. 10s. on rails. Chlorate of potash very scarce at 8½d. per lb. Soda still the same, and price nominally 8d. Litharge easier at £13. Lead salts move fairly well. Prices:—Foreign white, £25. f.o.b.; brown, £15. 15s. f.o.b.; English white, £27. 10s., makers' works; nitrate, £20. Sulphate of copper does not improve in price or demand, and £14. 10s. f.o.b. is to-day's quotation. Acetate of soda is being offered more freely, but prices for prompt or early delivery are firm and unchanged. For next year lower figures are quoted. Borax sells slowly at the convention prices, viz., 29s. crystal and 30s. for powdered. Bichromates of potash and soda quiet at 4½d. and 3¾d. White powdered arsenic continues firm at £12. 7s. 6d. to £12. 10s. f.o.r. Garston. Carbolic acids are about in the same position as before. Crystal is difficult to move; 4¾d. per lb. for 39/40° f.o.b. is full value. Crude sells much better, and prices are firm at 1s. 7s. for 70° and 1s. 6d. for 60°. Acetates of lime, brown and grey, are in better demand at £6. and £10. 10s. per ton respectively.

## LIVERPOOL OIL AND COLOUR MARKET.

Wednesday.

OILS.—The position of palm oil is very firm, and prices have advanced. Sales, however, have been good, prices being:—Lagos £24. 10s., Cameroon and Bennin £22. 10s. and £22. respectively, and Salt Pond £21. 15s., all transit. In olive there is a lack of demand, but prices continue firm at £35. to £40. per tun according to quality. Linseed was very dull the latter end of last week, with the result that buyers' expectations were realised, and Liverpool makes could be had to-day at 19s. 3d. to 20s. per cwt. in export casks. Cottonseed: Liverpool refined has been quiet at 18s. 3d., but has if anything a slight tendency to improve. There is no American offering. Castor oil is steady. Good seconds Calcutta has declined slightly, and a few small sales have been made ex quay at 2$\frac{5}{16}$d. per lb. First pressure French is firm, moderate sales having been made at 2$\frac{11}{16}$d. Tallow, owing to lack of supplies, is very firm, and last week's prices are fully maintained. Holders have a fair enquiry. Resin, common, is to-day quoted 4s. 4½d., and all grades are very firm and in fairly good demand. Spirits of turpentine are rather weaker, 23s. per cwt. now being the ruling value. They are firm at this, however. Petroleum is firm and in good demand, with American 5¼d. to 6¼d., according to quality. Russian refined 4½d. to 4⅝d. per gallon.

COLOURS are quiet. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s., medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20.

## THE METAL MARKETS.

LONDON, Wednesday.—Pig iron dull. Scotch warrants closed at 41s. 6d. cash. Middlesbrough 36s. 9d. cash, and Hematite 46s. 6d. cash. Copper firm: Chili bars, G.O.B.'s and G.M.B.'s closed at £47. 2s. 6d. cash, and £47. 11s. 3d. to £47. 18s. 9d., three months. Tin firm. Straits closed at £94. 5s. to £94. 15s. cash, and £94. 5s. to £94. 15s. three months. Australian, £94. 15s. cash. English ingots, £97. to £97. 10s. Lead quiet: Spanish, £10. 2s. 6d. to £10. 3s. 9d. English, £10. 7s. 6d. to £10. 10s. Silesian spelter: Ordinary, £19. Quicksilver firm: First hands, £6. 10s., second hands, £6. 7s. *Copper shares* steady; Cape, 1$\frac{13}{16}$ to 1$\frac{15}{16}$; Copiapo, 2¼ to 2⅜; Libiola, 3⅛ to 3⅜; Mason and Barry, 3¼ to 3⅝; Rio Tinto, 16$\frac{7}{16}$ to 16$\frac{9}{16}$; Tharsis, 4$\frac{11}{16}$ to 4$\frac{13}{16}$; Namaqua, 13$\frac{11}{16}$ to 15$\frac{13}{16}$; Panulcillo, ⅜ to ½.

WOLVERHAMPTON, Wednesday.—Manufactured iron orders irregularly distributed. Sheet and bar makers better engaged than other firms, home orders mostly finding employment for the works. Shipping demand still very slow. Prices, however, show scarcely any giving way. Common bars, £5. 15s.; best, £8.; best chain iron, about £9.; double best, £10. 5s. to £10. 10s. Sheets, doubles, £7. 5s. upwards; hoops, £6. 12s. 6d.; gas strip, £6.; best locomotive strip, £7. 10s. to £8. 10s. Pigs steady; midland sorts, 45s. to 48s.

GLASGOW, Wednesday.—Market steady, with small business. Scotch done at 41s. 5½d. and 41s. 6d. cash; closing with buyers at 41s. 5½d. cash, and 41s. 7½d. one month; sellers ask ½d. more. Middlesbrough closes with buyers at 36s. 9d. cash; sellers ask 37s. Hematite closes with buyers at 46s. 6d. cash; sellers ask 47s.

## THE LIVERPOOL MINERAL MARKET.

The market has more than maintained its firmness. Manganese: Arrivals are practically nil, besides which spot stocks are nearly exhausted, with a brisk demand and prices rising. Borate, 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump) quiet. Raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand), brisk; lump 20s., seconds 16s., and thirds 12s. French chalk: Arrivals fairly large, but prices are unaltered. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump, in good demand, but none offering; nuts, 70s. to 80s.; whilst finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, with little doing. Bilbao, Irish, and Cumberland easier. Santander and manganiferous quiet. Emery-

Best quality in good demand, both for home and export. No. £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth es quiet; best lump, 55s.; fine impalpable ground, £7.; ald" ground, 80s. Scheelite, wolfram, tungstate of soda, and n metal in good demand, and prices are firm. Chrome ore con- n good request, and prices are strong. Antimony ore steady at and metal £43. to £44. Asbestos very firm. Potters' lead alls, £10. 10s. to £11. Calamine strontia sulphate (celestine) Limespar steady, especially for English manufactured; old brand in demand at 50s. (ground). Felspar quiet. Fluor- Best quality scarce. Ferro-manganese in better demand. ago: Spanish, £5.; best Ceylon lump at last quotations; and Bohemian, £4. to £12. per ton. "Founders," £5. to lackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. l mica, £45. to £50. China clay steady, common, 18s. 6d.; edium, 22s. 6d. to 25s.; best, 30s. to 35s. (at Runcorn). Bog ide of iron) steady; finest quality 22s. to 23s.

## TYNE CHEMICAL REPORT.

TUESDAY.

nicals are quiet. Bleaching powder £7. 10s. per ton. Caustic naltered. Sulphur scarce, price quoted being £5. per ton. ching powder, softs, £7. 10s. per ton nett; hards, £7. 15s. n; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. 5s. per ecovered sulphur, 2 cwt. bags, £5. per ton; soda ash, 48%, s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. 1; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. r ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposul- f soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., r ton, 140° Tw., £4. 7s. 6d. per ton; soda crystals, in casks, s. per ton gross weight, in 2 cwt. bags, £2. 15s. per ton eight; chlorate of potash, firm at 9d. per lb. less 6%; pearl ing, £3. 10s. per ton nett; pure white sulphate of alumina, s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, s. per ton; nitrate of baryta crystals, £19. per ton; ground, os. per ton; sulphide of barium, £7. per ton; carbonate of a, £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; e of barium, £11. per ton.

h Durham salt, quiet at 10s. 1d. per ton f.o.b. Tees.

s: Trade is dull and prices generally are easier. Best North- n steam 9s. 1½d. to 9s. 3d. per ton. Small coal 3s. 9d. to 4s. . Gas coal in demand, price varying from 6s. 9d. to 8s. per Coke in fair demand, 14s. 9d. to 15s. per ton. Household coal

## THE COPPER MARKET.

rs. Harrington and Co., in their fortnightly report dated ool, 16th November, 1892, state:—The Chili Charters for the rtnight are advised as 1,000 tons, and exchange 19d. The total since 1st January, are 19,450 tons, against 17,700 tons same st year.

ng the past fortnight nearly 8,000 tons of G.m.b's and G.o.b's d hands, but up to the 11th sales were on a very moderate scale, th very little fluctuation in prices, till the 12th, when on account erica purchasing, values began to advance, and yesterday touched ash and £47. 10. three months, but this improvement was not ined, and at the close quotations were £46. 17s. 6d. and £47. . sellers respectively. To-day there was a further decline to os. and £47., but we close firm at £46. 12s. 6d. cash, and £47. three months.

works and business of Messrs. Pascoe, Grenfell and Sons have aken over by Messrs. Williams, Foster and Co., and it is reported her American mines besides the Anaconda are being shut down.

total stocks in Liverpool, Swansea, London, and Havre show a se of 1,422 tons for the fortnight. The stocks include about tons of copper sold, but not yet delivered to smelters. The supply shows a decrease of 1,454 tons for the fortnight, and the eliveries for the same period are 6,210 tons. The present stock glish G.m.b's in warehouse, Liverpool and Swansea, is 1,796 tons, 2,076 tons on the 1st inst. The delivery in Liverpool and was 280 tons, making a decrease of this quantity for the ht.

ned and manufactured sorts are firm, quotations being: Tough £50. to £50. 10s.; best select, £50. 10s. to £51. 10s.; Indian £54 10s. to £55.; strong sheets, £59.; and yellow metal sheets, o 5¼d. per lb.

The sales of furnace material comprise—at Liverpool: 200 tons Boleo Matte, at 9s. 3d.; 200 tons American Matte, at 9s. 3d.; 75 tons English precipitate at 9s. 6d., and 150 tons on private terms (both re-sales); 13 tons Spanish ore, at 8s 3d.; 4¼ tons Peruvian ore, at 9s.; and 110 tons Mexican ore, at 8s. 7½d. per unit. At Swansea: 1,200 tons Quebrada Regulus, at 8s. 7½d., and 775 tons Namaqua ore (to arrive), at 8s. 9d. per unit.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The changes in the general market include a further advance in chlorate of potash and in sulphate of copper, the latter in consequence of the rise in the value of the metal; with the exception of saltcake, there is no positive drop to record, although the shading of certain chemicals continues. The tone is that of quietness, with buyers on the one hand not anxious about supplies, and makers on the other willing to consider all reasonable proposals for business.

Sulphate of ammonia has improved, unquestionably, although not up to the mark of some of the local reports set afloat. Its prospects are certainly improved by the action of the Nitrate Committees in the direction of a stricter regulation of the shipments to European ports with the view of maintaining values at something like a steady level. Bichromate of potash and bichromate of soda are both unchanged, at the combination values herewith given, and in very weak demand.

Mineral oils and paraffins continue in active motion at the recently lowered values for the latter, following on the split amongst makers. Burning oils are largely called for ex contracts, and the season promises to top the average as regards turnover. Gasmaking oil (865°) has made a further advance. All the others as before.

Chief prices current are:—Soda crystals, £2. 15s. nett Tyne; alum in lump, £5. 10s., nett Glasgow; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. nett Liverpool; bleaching powder, £7. 5s. nett Tyne; saltcake, 32s. 6d.; borax, English refined, £30., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8½d., less 5% Liverpool; nitrate of soda, 9s.; sulphate of ammonia, £10. 1s. 3d. to £10. 3s. 9d. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £15. 5s. less 5% Liverpool; paraffin scale (hard), 2d., and soft 2d. per lb.; paraffin wax, 120°, semi-refined, 2½d.; paraffin spirit (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower); ditto (lubricating), 865°, £3. 5s. to £3. 10s., 885°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 44,314 bags.

# New Companies.

**Coppen Bros. and Co.**—CAPITAL £2,000. in £1. shares. Incorporated with a view to trading as chemists and druggists and dealers in all kinds of chemicals.

**Clitheroe Portland Cement Co., Limited.**—CAPITAL £5,000. in £10. shares. The object of this company is to obtain plant and mines and mining rights for the manufacture of cement and to trade in cement and clay in all its branches.

**Hyde Drug Co, Limited.**—CAPITAL £1,000. in £1. shares. The company has been formed to take over the business of drysalters, oil dealers and merchants, recently carried on by Mr. E. A. Sherwin, under the style of H. Oldfield, and to carry on the business of chemists, druggists and drysalters, etc.

**J. H. Waddington and Co., Limited.**—CAPITAL £30,000. in £10. shares. Incorporated to acquire the business hitherto carried on by the Crown Paper Mills, Beighton, and to trade as merchants, buyers and sellers or dealers in paper of all kinds. The subscribers to the memorandum of association are:—Moses Waddington, Sheffield, paper manufacturer; C. G. Waddington, Sheffield, married lady; J. Hatton, Derby, mill manufacturer; S. Haigh, Retford, paper manufacturer; R. Edeson, Sheffield, book-keeper; J. S. Haigh, Huddersfield, paper merchant; W. G. Hawson, Sheffield, accountant.

**Metal Reduction Co., Limited.**—CAPITAL £100,000. in £1. shares. This company has been promoted with the intention of entering into an agreement with the Metal Reduction Syndicate, Limited, and Mr. E. C. Koch, in regard to the carrying on of the manufacturing

business connected with the melting, refining and selling metals in all its branches. The subscribers to the memorandum of association are:—E. C. Palmer, 6, Southwell Gardens, S.W., clerk; F. Larpent, 25, Bucklersbury, E.C., gentleman; P. D. Marshall, Finsbury Park, clerk; F. E. Hille, St. John's Hill, S.W., clerk; J. Farrell, 23, Upper Hamilton-terrace, N.W.; G. Pixley, 270, Broad-street, bullion broker; C. Beck, 68, Cornhill, E C., optician.

**T. Mosscrop and Co., Limited.**—Capital £30,000. in £10. shares. This company has been formed to take over the business of drysalters, oilmen, etc., hitherto carried on by Mr. T. Holmes, of Bolton, and to trade as chemists, drysalters, oil and colourmen, and dealers in paints and pigments. The subscribers to the memorandum of association are:—T. Holmes, Hayward Leigh, Sharples, Lancashire; E. A. Holmes, Sharples; C. B. Holmes, Wigan; R. Landaver, Hayward Leigh, Lancashire; E. Knowles, Bolton, Lancashire; A. Knowles, Bolton, Lancashire.

**W. Johnson and Sons, Limited.**—Capital £50,000. in £20. shares. Incorporated to carry on the business of makers and dealers in oils, paints, colours, varnishes, glue, chemicals and chemical compounds. The subscribers to the memorandum of association are:—H. H. White, 23a, George-street, Portman-square, W., clerk; H. Baxter, 2, Glengall-road, N.W., merchant; W. S. Harden, 121, De Beauvoir-road, N., book-keeper; J. E. O. Clements, Brighton, clerk; W. Henson, Camberwell, clerk; H. L Davey, Kennington-road, clerk; A. L. Bainberser, Cannon-street Hotel, gentleman.

# The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

### APPLICATIONS FOR LETTERS PATENT.

**Separating Tar and Ammonia from Gas.** J. Goetz. 19,997. Nov. 7th.
**Aluminium Pen for Writing on Slates.** M. Roeder. 20,049. Nov. 7th.
**Improvements in the Manufacture of Bleaching Powder and Apparatus therefor.** W. J. Fraser and L. M. Fraser. 20,055. Nov. 7th.
**Improved Thermometer.** J. Brückner. 20,114. Nov. 8th.
**Filtering Sewage Sludge, etc.** J. B. Alliott and J. M. C. Paton. Nov. 8th.
**Filtering Apparatus.** J. H. Minto. 20,139. Nov. 8th.
**Paper Pulp Digesters.** H. H. Lake. 20,145. Nov. 8th.
**Solder for Aluminium.** W. A. Briggs. 20,208. Nov. 9th.
**Manufacture of Sulphurous Acid, Sulphites and Bisulphites of L Soda.** M. P. Hatschek. 20,269. Nov. 10th.
**Improvements in the Manufacture of Chlorine.** P. de Wilde, A. and F. Hurter. 20,284. Nov. 10th.
**Apparatus for the Manufacture of Paper.** P. Smith. 20,290. Nov.
**Manufacture of Yeast.** W. S. Squire. 20,295. Nov. 10th.
**Treating Complex Ores containing Sulphides or Zinc, Lead a Metals.** A. Guthrie and R. F. Macfarlane. 20,318. Nov. 10th.
**Portable Chemical Fire Extinguishers.** I. L. Carr and G. W. 20,332. Nov. 10th.
**Production and Use of Gaseous Fuels.** P. A. Fichet and R. Heurte Nov. 10th.
**Obtaining Blood-Albumen for Commercial Purposes.** C. S. Roy Sherrington. 20,351. Nov. 11th.
**Extracting Oil from Grain and other Materials.** F. W. Golby. Nov. 11th.
**Artificial Marble.** P. A. Moreau. 20,414. Nov. 11th.
**Improvements in Copper Smelting Apparatus.** I. J. Monger and R. 20,430. Nov. 11th.
**Thermometers.** J. J. Hicks. 20,443. Nov. 11th.
**Machinery for Making Cement Pipes.** E. Oebrle. 20,473. Nov. 1
**Sterilising and Oxidising Liquids by Electricity.** A. B. Wookes Nov. 12th.
**Manufacture of Ink.** G. M. Keevil. 20,512. Nov. 12th.

# Gazette Notices.

### PARTNERSHIP DISSOLVED.

J. H. Crossley and M. Synnot, under the style of Hamer Synnot Walton, near Liverpool, soap manufacturers.

### BANKRUPTCY ACTS, 1883 and 1890.

#### Receiving Order.

Whitworth, Alfred Ernest, trading as the Manchester and Liverpool Manchester, soap manufacturer.

#### Adjudication.

Forster, Nathan Robert, Cowley, Middlesex, trading as the Metropol and Cement Works, Cowley, Peachey, Uxbridge, cement manufactur

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending November 12th.*

**Acetate of Lime—**
U. States, 614 pkgs. H. Wallace & Co.
" 450 Johnson & Hooper

**Acetic Acid—**
Holland, 215 Beresford & Co.
" 189 A. & M. Zimmermann
Belgium, 2 Leach & Co.

**Alkali—**
France, 100 c. Arnati & Harrison
Holland, 1,010 B. Jacob & Sons

**Alum—**
Holland, 14 pkgs. Ohlenschlager Bros.

**Ammonium Chloride—**
Holland, 10 pkgs. J. Owen
" 10 H. Lorenz

**Antimony—**
Portugal, 7 t. J. Bamber
France, 2 B. & F. Wf. Co., Ltd.
" 61 Novelli & Co.
" 13 Macqueen Bros.
Spain, 17 L. & I. D. Jt. Co.

**Asbestos—**
Holland, £10 G. Rahn & Co.
France, 58 Moy & Co.
Italy, 65 W. Byford
U. States, 475 "
N. Russia, 100 W. F. Malcolm & Co.
" 630 Bailey & Leetham
France, 10 Atkins & Nisbet
Holland, 71 Phillipps & Graves
Canada, 360 W. Byford

**Barium Chloride—**
Germany, 76 pkgs. H. Lambert

**Barytes—**
Germany, 134 cks. W. Harrison & Co.
Holland, 44 "
Germany, 19 T. T. Creed
" 23 Tough & Henderson
Belgium, 12 J. L. Lyon & Co.
" 42 P. Jantzen
Holland, 14 Beresford & Co.

**Boracic Acid—**
Germany, 22 pkgs. L. & I. D. Jt. Co.

**Borate of Manganese—**
Germany, 10 pkgs. Petri Bros.

**Bromine—**
Germany, 160 pkgs. A. & M. Zimmermann

**Caoutchouc—**
Mozambique, 14 c. Lewis & Peat
U. States, 165 Williams, Torrey, & Co., Ltd.
Portugal, 3 Findlay, Durham, & Co.
E. Indies, 12 Ralli Bros.
" 180 Huttenbach & Co.
Madagascar, 80 Proctor Bros.
France, 67 Anderson, Weber, & Smith
Mombasa, 56 Lewis & Peat
Zanzibar, 9 Anderson, Weber & Smith
France, 10 Flageollet & Co.
Zanzibar, 6 L. & I. D. Jt. Co.

**Castor Oil—**
Italy, 25 cs. J. Knill & Co.
" 25 Major & Field
" 20 Stebbing & Co.
" 20 Barron, Harvey, & Co.
Germany, 1 T. Christy & Co.
France, 6 cks. L. & I. D. Jt. Co.

**Caustic Potash—**
France, 10 pkgs. Spies Bros. & Co.
" 86 c. Petri Bros.

**Caustic Soda—**
Holland, 600 c. Beresford & Co.

**Chemicals** (*otherwise undescribed*)
Holland, 1 pkg. Krayer, Back, & Co.
Germany, £12 Sparkes, White, & Co.
" 5 L. & I. D. Jt. Co.
" 12 Phillipps & Graves
" 113 T. H. Lee
" 64 A. & M. Zimmermann
" 13 Hernu, Peron, & Co.
" 11 W. Burton & Sons
— 600 V. V. Lopez
Holland, 5 J. Owen
France, 6 Mory & Co.
" 18 B. & F. Wf. Co., Ltd.
U. States, 10 S. Lambert & Co.
Germany, 20 Domeier & Co.

**Copperas—**
Germany, 31 pkgs. J. Kitchin, Ltd.

**Cream of Tartar—**
Spain, 14 pkgs. W. C. Bacon & Co.
" 2 Evans, Lescher, & Co.
France, 5 J. Puddy & Co.
" 39 B. & F. Wf. Co., Ltd.
" 2 W. C. Bacon & Co.
" 3 G. S. N. Co.
Holland, 67 Middleton & Co.
Italy, 21 Fellows, Morton, & Co.
France, 4 Ross & Deering
" 10 M. Ashby, Ld.

**Dyestuffs—**

**Argols**
France, 12 pkgs. G. W.
" 50 Williams,
Italy, 266 Thames S. T.

**Cochineal**
Canaries, 100 pkgs. W.

**Cutch**
France, 200 pkgs. Hom
Rangoon, 250
" 200 A. How
" 209 Perkin

**Extracts**
France, 80 pkgs. 10 cks.
" 80 Prcp. Chem
Belgium, 25 Le

**Gambier**
E. Indies, 420 pkgs. H
" 469 Brown
" 1,091 L. & I.
" 371 Brinkm
" 217 Eastm

**Indigo**
E. Indies, 36 chts. L. & I.
" 8 R. Von Gle
" 17 Arbuthnot
" 4 Gray, Dun
Manila, 60 S. Fi

**Myrabolams**
E. Indies, 3,377 pkgs. L. & I.
Austria, 168 S. Fi

**Orchella**
Zanzibar, 31 pkgs. Lewis & Peat
**Sumac**
Italy, 50 pkgs. J. Knill & Co.
**Tanners' Bark**
Italy, 12 t. Hicks, Nash, & Co.
" 40 A. & W. Nesbitt
**Valonia**
A. Turkey, 89 t. Adam Bros.

**Dyestuffs** *(otherwise undescribed)*
U. States, 1 pkg. E. Damant
" 8 W. W. Young
E. Indies, 114 Hoare, Wilson, & Co.

**Farina—**
Germany, 200 pkgs. J. Anderson & Co.
" 50 H. Lambert
" 30 Prop. Chambln.'s Wf.
Holland, 50 "
" 50 J. Knill & Co.
" 550 R. G. Hall & Co.
" 50 J. Barber & Co.

**Glucose—**
Germany, 25 pkgs. 204 c. Prop. Chmbln.'s Wf.
" 50 400 c. F. J. Warren
" 250 250 Baxter & Hoare
Holland, 40 43 Prop. Sun Wf.
U. States, 647 3,724 L. Sutro & Co.
France, 300 400 Weatherley & Co.
Germany, 20 10 Boake, Roberts, & Co.
Holland, 6 45 J. Knill & Co.
France, 300 300 L. Sutro & Co.

**Guano—**
Cape Town, 350 t. D. de Pass & Co.

**Iodoform—**
Spain, 3 pkgs. Mory & Co.

**Iron Perchloride—**
Holland, 4 pkgs. R. Morrison & Co.

**Lead Acetate—**
Germany, 24 pkgs. C. J. Capes & Co.
" 8 F. Boehm
" 8 T. Palmer

**Manure—**
Germany, 250 t. Odams Chemical Manure Co.

**Methyl Alcohol—**
Germany, 8 dms. Stein Bros.

**Mica—**
U. States, £109 W. M. Smith & Sons
" 50 Jacob & Vallentin
Singapore, 30 Devitt & Hett

**Ochre—**
Germany, 10 brls. C. S. Lovell

**Painters' Colours—**
Germany, 32 cks. T. Hamilton
" 24 pkgs. L. & I. D. Jt. Co.
France, 30 Flageollet & Co.
U. States, 2 brls. Neale & Wilkinson
" 50 A. C. Davey
Germany, 6 Phillipps & Graves
" 1 H. Lambert
Holland, 24 Hernu, Peron, & Co.
Belgium, 23 T. Palmer
Germany, 17 T. H. Lee
U. States, 400 M. Ashby, Ld.
" 22 L. & I. D. Jt. Co.
Germany, 300 T. W. & A. Smith
Holland, 80 C. J. Capes & Co.
" 1 J. Barber & Co.
" 18 R. Baelz & Co.
U. States, 6 cs. T. Ronaldson & Co.
" 25 H. & G. Dutfield
Germany, 50 cks. H. Johnson & Sons

**Paraffin Wax**
U. States, 100 brls. C. Ogleby & Co.
Rangoon, 1,000 cs. H. Hill & Sons
Germany, 42 pkgs. Ross & Deering
U. States, 4,910 J. H. Usmar & Co.

**Phosphoric Acid—**
Germany, 210 pkgs. Phillipps & Graves

**Pitch—**
Germany, 25 cks. Fellows, Morton, & Co.
Sweden, 100 Sieveking, Droop, & Co.

**Plumbago—**
Holland, 38 cks. B. Gallaway
Ceylon, 96 brls. R. G. Hall & Co.

**Potash—**
Germany, 7 pkgs. L. & I. D. Jt. Co.
France, 110 c. F. W. Berk & Co., Ltd.
Canada, 145 Charles & Fox

**Potash Salts—**
Holland, 10 pkgs. R. Morrison & Co.

**Potassium and Sodium Bicarbonate—**
Holland, 47 cks. A. & M. Zimmermann

**Potassium Carbonate—**
France, 10 c. J. A. Reid

**Potassium Cyanide—**
Holland, 6 pkgs. F. Boehm
" 29 G. Rahn & Co.

**Potassium Hydrate—**
France, 10 pkgs. Spies Bros. & Co.

**Potassium Oxalate—**
Norway, 20 pkgs. F. Boehm

**Potassium Oxymuriate—**
Belgium, 50 pkgs. G. Boor & Co.

**Potassium Permanganate—**
Holland, 14 pkgs. F. Boehm

**Potassium Sulphate—**
France, 1,100 pkgs. Anglo Contl. G. Wks.
" 500 F. W. Berk & Co., Ld.
" 500 Weatherley, Mead, & Co.

**Quicksilver—**
Italy, 1,000 btls. L. & I. D. Jt. Co.

**Rosin—**
U. States, 300 brls. G. Nutter & Co.
" 300 Moore & Hole

**Salicylic Acid—**
Holland, 2 pkgs. F. Boehm

**Saltpetre—**
Germany, 250 bgs. C. Wimble & Co.
Holland, 100 J. Greig
E. Indies, 616 Brown & Elmslie
" 4,365 Ralli Bros.
Germany, 3 cks. Craven & Co.

**Soapstone—**
U. States, £93 Loco Packing Co.

**Sodium Acetate—**
France, 18 pkgs. S. F. Waters & Co.

**Sodium Hyposulphite—**
Holland, 100 pkgs. Beresford & Co.

**Stearine—**
France, 142 bgs. Beresford & Co.
Holland, 62 H. Hill & Sons

**Sulphur—**
Italy, 72 t. Pigou, Wilks, & Co.
" 5 H. W. Ison
" 5 J. Kitchin, Ld.

**Tallow—**
Canada, 118 cks. J. W. Dottridge
N. Russia, 70 Leach & Co.
" 35 Culverwell, Brooks, & Co.
N. Zealand, 112 Dalgetty & Co.
" 123 N. M. & A. Co. of N. Z.
" 45 Low, Sons, & Bedford
" 57 Culverwell, Brooks, & Co.
" 58 Nelson Bros., Ltd.
" 283 A. Tremearne & Co.
Queensland, 69 Goldsbrough, Mort, & Co.
" 250 Anderson, Weber, & Co.
Holland, 4 Phillipps & Graves
N. Zealand, 982 Flack, Chandler, & Co.
" 6 Bowron Bros.
" 564 N. Z. L. & M. A. Co.
" 234 H. Deering
" 172 Gear Meat Co.
Queensland, 449 Phillipps & Graves

**Tartaric Acid—**
Holland, 4 pkgs. C. Christopherson & Co.
" 154 J. Owen
" 19 Middleton & Co.
" 33 B. & F. Wf. Co., Ltd.
France, 38 "

**Turpentine—**
Spain, 500 brls. Moore & Hole

**Ultramarine—**
Germany, 20 cs. G. Steinhoff
" 4 cks. Glaeser & Vogeler
Belgium, 2 Leach & Co.
Germany, 10 cs. J. Kitchin, Ltd.
Holland, 5 Hernu, Peron, & Co.

**Varnish—**
U. States, 9 pkgs. Standard Varnish Co.
" 6 Williams, Torrey, & Co.

**Vermilion—**
Germany, 2 cs. W. Harrison & Co.

**White Lead—**
Holland, 12 cks. Spies Bros. & Co.
Germany, 45 G. Clifford
" 26 Burrell & Co.
" 23 M. Ashby, Ld.
" 21 Magee, Taylor, & Co.
" 27 W. A. Rose & Co.
France, 10 Colthurst & Harding
" 10 J. Watt & Son
Holland, 2 Phillipps & Graves
" 9 A. Zumbeck & Co.
Belgium, 24 Leach & Co.
Holland, 27 F. Pryor
" 50 F. & W. Farmiloe
" 19 Burrell & Co.
Germany, 50 Randall Bros.

**Zinc Oxide—**
Holland, 100 brls. N. Smith
Germany, 26 cks. J. Matton
Holland, 100 M. Ashby, Ltd.
" 12 G. Rahn & Co.
" 625 Soundy & Sons
" 27 Burrell & Co.

## LIVERPOOL.

*Week ending November 10th.*

**Acetic Acid—**
Rotterdam, 5 botls.

**Benzol—**
New York, 1,020 brls.

**Boracic Acid—**
Lisbon, 12 cks. Pickford & Co.
" 72

**Borate of Lime—**
Valparaiso, 748 bgs.
Antofagasta, 1,450 Cockbain, Allardice & Co.

**Borax—**
Antwerp, 1 brl. J. T. Fletcher & Co.

**Castor Oil—**
Calcutta, 170 cs.
" 250 Petrocochino Brs.

**Chemicals** *(otherwise undescribed)*
Hamburg, 12 cs. 1 ck.

**Colours—**
Ghent, 4 brls. J. T. Fletcher & Co.
Antwerp, 30 cs. 10 cks. "
" 10
Rotterdam, 16 11
Hamburg, 7 1

**Cottonseed Oil—**
New York, 250 brls.

**Cream of Tartar—**
Barcelona, 9 hhds.
Bilbao, 2 cks. G. H. Fletcher & Co.

**Dyestuffs—**
**Algorabilla**
Havre, 398 bgs. Cunard S. S. Co., Ld.
**Alizarine**
Rotterdam, 36 cks.
**Annatto**
Bordeaux, 9 cks.
**Argols**
Bordeaux, 125 cks.
**Cochineal**
Gr. Canary, 6 bgs. S. Bruce
" 25 Kennedy & Moore
Teneriffe, 5 G. S. Bruce
" 6 Kuhner, Henderson & Co.
Gr. Canary, 50 P. R. M'Quie & Son
**Extracts**
Baltimore, 50 brls. Mucklow & Co.
N. York, 37 bxs. 10 T. Atkin & Co.
Bordeaux, 266 cks.
New York, 75 bxs. B. Wilkinson & Co.
**Fustic**
Colon, 166 pps. A. Dobell & Co.
**Gambier**
Hamburg, 196 bls. Browne, Geveke & Co.
**Indigo**
Akassa, 19 cs. Royal Niger Co.
Gr. Bassa, 1 brl. Norlon & Co.
**Madder**
Smyrna, 7 bls.
**Orchella**
Guayaquil, 31 bls. H. Bright
**Saffron**
Spain, 3 cs.
**Sumac**
Palermo, 50 bgs. J. Kitchen
" 300 H. Rookes, Sons & Co.
" 2,165 157 bls.
**Valonia**
Syra, 250 bgs. G. H. Scrini
Smyrna, 70 Androulis Brs.
" 80 C. G. Nicolaides
" 1,747

**Farina—**
Hamburg, 500 bgs. Browne, Geveke & Co.
" 20

**Glucose—**
New York, 100 brls.

**Horn Piths—**
Rosario, qnty.

**Iodine—**
Valparaiso, 77 brls. A. Gibbs & Sons
" 15
" 14 W. & J. Lockett
" 108 Vorwerk, Gebruder & Co.
Iquique, 26 A. Gibbs & Sons
" 1 cs.

**Limestone—**
Antwerp, 5 cs. J. T. Fletcher & Co.

**Litharge—**
Rotterdam, 26 cks.

**Manganese—**
Carrizal, qnty.
Huelva, 1,100 t.
Bordeaux, 87 R. J. Francis & Co.
Shanghai, 350 194 pkgs.

**Naphtha—**
New York, 4,886 brls.

**Ochre—**
Rouen, 22 cks. R. J. Francis
Bordeaux, 22

**Phosphate—**
Terneuzen, 356 t.

**Phosphate Rock—**
Port Royal, 1,800 t. W. Smith & Co.

**Potashes—**
Montreal, 25 brls. M. Paterson

**Potash Salts—**
Hamburg, 2,009 bgs.

**Rosin—**
Savannah, 6746 brls.
Wilmington, 5,269

**Saltpetre—**
Calcutta, 649 bgs.
Hamburg, 100 kgs.

**Soap—**
Leghorn, 40 cs.
Naples, 75 P. Behrends
" 111 A. Anverney
Messina, 31 bxs.
Boston, 4 cs J. Thompson
Rotterdam, 4
Bordeaux, 2

**Soda—**
Rotterdam, 2 cks.

**Sodium Nitrate—**
Caleta Buena, 18,754 bgs. Gunston, Sons & Co.
Pisagua, 13,690

**Stearine—**
Antwerp, 13 bgs.

**Sulphur—**
Catania, 100 bgs. 133 brls.
Huelva, 1,407 t. Matheson & Co.

**Tallow—**
New York, 755 tcs.
Baltimore, 1,625
San Francisco, 460 brls.
B. Ayres, 11 pps. Las Capezes Estancia Co., Ld.
" 40 cks.
Boston, 125 tcs. J. Mackee & Co.
Halifax, 6 cks. J. M'Kettrick
Philadelphia, 160 tcs.

**Tartar—**
Bordeaux, 11 cks.

**Tartaric Acid—**
Rotterdam, 12 cks.

**Tin Oxalate—**
Rotterdam, 12 cs.

**Turpentine—**
Wilmington, 300 brls.

**Ultramarine—**
Rotterdam, 16 cs. 3 cks.

**Verdigris—**
Bordeaux, 2 cks.

**White Lead—**
Rotterdam, 94 cks.

**Zinc Ashes—**
Antwerp, 8 cks. J. T. Fletcher & Co.
Bordeaux, 7
Nantes, 11 brls. R. J. Francis & Co.

**Zinc Oxide—**
Antwerp, 60 brls. J. T. Fletcher & Co.
" 70
Rotterdam, 50 cks.

**Zinc White—**
Rotterdam, 200 cks. O. & H. Marcus

## HULL.

*Week ending November 12th.*

**Acetic Acid—**
Rotterdam, 12 ballns. Hutchinson & Son

**Acid—**
Hamburg, 10 cks. Wilson, Sons & Co., Ld.

**Alum—**
Rotterdam, 16 cks. Hutchinson & Son

**Ammonium Chloride—**
Hamburg, 10 cbys. Wilson, Sons & Co., Ld.

**Arsenic—**
Hamburg, 35 cks. Wilson, Sons & Co., Ld.

**Barytes—**
Antwerp, 103 cks.

**Bone Ash—**
Antwerp, 10 bgs. Wilson, Sons & Co., Ld.

**Caoutchouc—**
Hamburg, 1 bl. 7 cs. C. M. Lofthouse & Co.

**Chemicals** (*otherwise undescribed*)
Bremen, 3 cs. 4 cks. Veltmann & Co.
Hamburg, 30 cks. Wilson, Sons & Co., Ld.

**Colours—**
Rotterdam, 4 cs. 15 cks. Hutchinson & Son
Ghent, 25
Antwerp, 68 Bailey & Leetham
Flushing, 7 cs. 5 59 pks. Zeeland S. S. Co.
Rotterdam, 2 55 W. & C. L. Ringrose
Amsterdam, 2 ,,
Ghent, 1 cs. Wilson, Sons & Co., Ld.
Bremen, 8 cks. Veltmann & Co.
,, 1 cs. J. Pyefinch & Co.
,, 15 G. Malcolm & Son
Amsterdam, 1 Wilson, Sons & Co., Ld.
Rotterdam, 1 ck. Todd & Son
,, 9 pks. 8 cks. G. Lawson & Sons

**Dextrine—**
Stettin, 100 bgs. Wilson, Sons & Co., Ld.

**Dyestuffs—**
**Alizarine**
Rotterdam, 33 pks. W. & C. L. Ringrose
,, 33 brls. Hutchinson & Son
**Madder**
Rotterdam, 2 cks. Hutchinson & Son
,, 1 G. Lawson & Sons
**Sumac**
Palermo, 2,380 bgs. Wilson, Sons & Co., Ld.
,, 400

**Farina—**
Stettin, 770 bgs. Wilson, Sons & Co., Ld.
Antwerp, 100 Bailey & Leetham
Hamburg, 120
Rotterdam, 1,849 pks.
Harlingen, 620 bgs. W. & C. L. Ringrose
Ghent, 232 bxs. Wilson, Sons & Co., Ld.
Harlingen, 320 bgs.
Hamburg, 50 Wilson, Sons & Co., Ld.

**Glucose—**
Stettin, 400 bgs. 35 cks.

**Lead Acetate—**
Stettin, 24 cks. Wilson, Sons & Co., Ld.

**Ochre—**
Rouen, 10 cks. Rawson & Robinson

**Pitch—**
Hamburg, 144 brls. H. F. Pudsey
Ghent, 60 Wilson, Sons & Co., Ltd.

**Potash—**
Stettin, 9 cks. Wilson, Sons & Co., Ld.
Dunkirk, 10 ,,
,, 31
Antwerp, 90 pks. Wilson, Sons & Co., Ld.

**Pyrites—**
Huelva, 1,910 t.

**Quicksilver—**
Hamburg, 5 botls. Wilson, Sons & Co., Ltd.

**Rosin—**
Wilmington, 577 brls.
Charleston, 2,689
Hamburg, 10 bgs. Bailey & Leetham

**Saltpetre—**
Hamburg, 4 cks.
,, 5 G. Lawson & Sons
Antwerp, 135 bgs. Wilson, Sons & Co., Ld.

**Size—**
Rotterdam, 7 cs. W. & C. L. Ringrose
Hamburg, 9 cks. C. M. Lofthouse & Co.

**Soap—**
Bari, 265 cs. Wilson, Sons & Co., Ld.

**Stearine—**
Antwerp, 125 bgs. Hornby & Needler
,, 67 Wilson, Sons & Co., Ld.

**Tartaric Acid—**
Rotterdam, 1 ck. Hutchinson & Son
,, 4 W. & C. L. Ringrose

**Tin Oxide—**
Rotterdam, 2 cbys. G. Lawson & Sons

**Turpentine—**
Wilmington, 2,200 brls.
Libau, 52
Savannah, 2,796

**Ultramarine—**
Bremen, 2 cks. J. T. Seddon

**Waste Salt—**
Hamburg, 10 t. 100 bgs. G. Lawson & Sons
,, 608

**White Lead—**
Rotterdam, 10 cs. 35 cks. Hutchinson & Son
Antwerp, 43 Bailey & Leetham
Flushing, 60 Zeeland S. S. Co.

## TYNE.

*Week ending November 12th.*

**Alum Earth—**
Hamburg, 54 cks. Tyne S. S. Co.

**Barytes—**
Rotterdam, 57 cks. Tyne S. S. Co.
Hamburg, 23 ,,

**Colours—**
Antwerp, 2 cks. Tyne S. S. Co.

**Farina—**
Hamburg, 25 bgs. Tyne S. S. Co.

**Glucose—**
Rotterdam, 5 cks. Tyne S. S. Co.

**Limestone—**
Antwerp, 3 pkgs. Tyne S. S. Co.

**Phosphate—**
Rotterdam, 2,200 bgs. J. Wann

**Plumbago—**
Antwerp, 10 bgs. Tyne S. S. Co.

**Pyrites—**
Aquilas, 1,130 t.

**Saltpetre—**
Hamburg, 14 cks. Tyne S. S. Co.

**Ultramarine—**
Rotterdam, 20 cs. Tyne S. S. Co.

**Waste Salt—**
Harburg, 253 t. 10 c.

**Zinc Oxide—**
Antwerp, 25 brls. Tyne S. S. Co.

## GLASGOW.

*Week ending November 17th.*

**Asbestos—**
Montreal, 240 bgs. G. Gillespie & Co.

**Barytes—**
Rotterdam, 91 cks.

**Bleaching Powder—**
New York, 100 bxs.

**Colours—**
Rotterdam, 7 cks. 2 bxs. J. Rankine & Son

**Cream of Tartar—**
Rotterdam, 21 cks. J. Rankine & Son

**Dyestuffs—**
**Alizarine**
Rotterdam, 97 cks.
**Cutch**
Boston, 11 hhds. 1 bt. 5 brls.
**Madder**
Rotterdam, 2 cks. J. Rankine & Son

**Farina—**
Hamburg, 100 bgs.

**Glucose—**
New York, 200 brls.

**Paint—**
Philadelphia, 1 brl.

**Paraffin Wax—**
New York, 600 brls.

**Potash—**
Rotterdam, 57 cks. J. R

**Pyrites—**
Huelva, 1,588 t. Tharsis C

**Rosin—**
Savannah, 2,200 brls. Rowley

**Salt—**
Hamburg, 1 pkge.

**Tallow—**
Baltimore, 150 bls.
New York, 25 trs.

**Turpentine—**
Savannah, 1,375 brls. Rowley

**White Lead—**
Rotterdam, 68 cks.

**Zinc White—**
Rotterdam, 100 cks. J. R

## GOOLE.

*Week ending November 1st*

**Alum—**
Rotterdam, 33 cks

**Dyestuffs—**
**Alizarine**
Rotterdam, 42 pkgs.
**Extracts**
Rotterdam, 26 brls.
**Fustic**
Rotterdam, 573 pcs.
**Indigo**
Rotterdam, 15 chts.

**Dyestuffs** (*otherwise undescri*
Boulogne, 31 cks. 14 cs. 4 pk

**Farina—**
Hamburg, 1,030 bgs.

**Lead Acetate—**
Hamburg, 15 cks.

**Potash—**
Dunkirk, 24 dms. 16 cks.

**Pyrites—**
Seville, 1,020 t.

**Saltpetre—**
Rotterdam, 100 bgs.
Hamburg, 3 cks.

**Waste Salt—**
Hamburg, 280 t. 214 cks.

## GRIMSBY.

*Week ending November 5th*

**Caoutchouc—**
Hamburg, 10 pkgs.

**Chemicals** (*otherwise undescri*
Rotterdam, 5 pkgs.
Hamburg, 11

**Dyestuffs** (*otherwise undescr*
Dieppe, 39 cks.

**Farina—**
Hamburg, 188 bgs.

**Size—**
Antwerp, 13 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending November 16th.*

**Acids—**
Montreal, 9 cs. £19
Algoa Bay, 8 17

**Alkali—**
Auckland, 5 t. 1 c. £53

**Aluminous Cake—**
Melbourne, 10 t. 15 c. £33

**Ammonium Carbonate—**
Halifax, 5 c. £8
Paris, 4 t. 3 108
New York, 75 pkgs. 435
Bombay, 5 12

**Ammonium Chloride—**
Melbourne, 1 ck. £10
Halifax, 10 c. 21

**Ammonium Phosphate—**
Constantinople, 10 c. £15

**Ammonium Sulphate—**
Constantinople, 10 c. £5

**Benzoic Acid—**
Philadelphia, 1 cs. £7

**Bisulphide of Carbon—**
Wellington, 2 t. £42
Philadelphia, 4 16 c. 74
Sydney, 50 drs. 25

**Bisulphite of Lime—**
Bombay, 2 t. 12 c. £25

**Bleaching Powder—**
Auckland, 9 c. £5

**Borax—**
Stettin, 1 ck. £12
Dunedin, 10 c. 16
Hamburg, 4 13
Melbourne, 10 16

**Carbolic Acid—**
Rotterdam, 5 t. 7 c. 24 cks. £151
Dusseldorf, 40 drs. 182
Philadelphia, 80 375
Hamburg, 40 277

**Caustic Potash—**
Sydney, 11 c.

**Caustic Soda—**
Lyttelton, 2 t.
B. Ayres, 3 18 c.
E. London, 1 9
Melbourne, 2 12
Bourgas, 3 6
Varna, 4 14
Newcastle, 1 1
Algoa Bay, 2 4

**Chemicals** (*otherwise undescr*
Natal, 7 pkgs.
Algoa Bay, 20 drs. 7 cks.
Bombay, 5 cs.
Penang, 20

**Coal Products—**
**Alizarine**
Bombay, 65 cks. £396
New York, 25 375
Lisbon, 2 kgs. 20
**Aniline**
New York, 29 pkgs. £250
**Aniline Oil**
Rotterdam, 12 drs. £450
**Anthracene**
Dusseldorf, 691 cks. £3,558
Rotterdam, 33 253
**Benzol**
Philadelphia, 20 drs. £204
Rotterdam, 40 cks. 328
Terneuzen, 31 298
**Coal Tar Dyes**
Yokohama, 10 cs. £124
**Creosote**
Ghent, 1,337 cks. £569
New York, 6 cs. 65
Boulogne, 1 11
**Creosote Oil**
Treport, 72 brls. £136
**Naphtha**
Treport, 27 brls.
**Naphthalene**
Amsterdam, 31 cks. £40
Hamburg, 10 53
**Nitro-Naphthalene**
New York, 2 cks. £16
**Paraffin Wax**
Pt. Elizabeth, 62 cks. £385
**Pitch**
Boston, 250 brls. £128
Antwerp, 1,202 t. 1,635
Terneuzen, 819 1,095
Dunkirk, 212 320
Rouen, 417 406
Caen, 118 110
Hochfield, 121 169
Alexandria, 200 78
New York, 1,870 bgs. 347
Constantinople, 150 60
**Tar**
Stettin, 100 brls. £42
**Tar Oil**
Paris, 20 cks. £80
Rotterdam, 50 brls. 38
**Toluol**
Calais, 70 cks. £250
**Xylole**
Hamburg, 18 drs. £227

**Coal Products** (*otherwise undesc'd.*)
Rio de Janeiro, 40 brls. £37

**Citric Acid—**
Hamburg, 2 t. £324
Oporto, 3 c. 27
Melbourne, 5 40
Halifax, 5 44
Fremantle, 1 8
Copenhagen, 5 40

**Copperas—**
Varna, 7 t. 16 c. £27
Auckland, 1 5 32

**Copper Sulphate—**
Napier, 1 t. £15
Wellington, 1 15
Lisbon, 5 1 c. 68
Oporto, 1 18
Odessa, 6 4 85
Dunedin, 1 15
Treport, 5 2 82

**Cream of Tartar—**
Auckland, 15 c. £70
E. London, 2 cs. 10
Melbourne, 5 t. 416
Sydney, 2 5 187

**Disinfectants—**
Calcutta, 22 pkgs. 227 drs. £81
Otago, 31 cs. 31
Melbourne, 8 30 cks. 91
Sydney, 20 52
Bombay, 75 67

**Flowers of Sulphur—**
Algoa Bay, 18 c. £8

**Guano—**
Melbourne, 20 t. £200

**Manure—**
Genoa, 9 t. 19 c. £60
Auckland, 50 275
Berbice, 40 410
Demerara, 40 440
Hamburg, 150 1,500
Treport, 19 19 120
Valencia, 400 8 4,004
Melbourne, 5 14 130
Alicante, 21 17 176
Gandia, 151 9 1,216
Jamaica, 45 365

**Metallic Sodium—**
Algoa Bay, 1 cs. £7

**Phosphorus—**
Dunedin, 23 cs. £231

**Potash—**
Trinidad, 3 c. £9
Lyttelton, 12 13

**Potassium Bicarbonate—**
Philadelphia, 2 t. 6 c. £68

**Potassium Bichromate—**
Auckland, 1 t. 5 c. £53
Constantinople, 8 16

**Potassium Chlorate—**
Hamilton, 10 c. £36
Algoa Bay, 2 8
Lisbon, 2 8
Dantzig, 4 kgs. 14
Reval, 1 t. 10 115

**Potassium Nitrate—**
New York, 1 t. 3 c. £30

**Saltpetre—**
Melbourne, 2 t. 2 c. £44
Gothenburg, 1 21
Rotterdam, 1 22
Halifax, 1 22
Oporto, 18 9 375
St. Michaels, 16 16
Lisbon, 7 15 151

**Sheep Dip—**
Wellington, 220 drs. £175
Adelaide, 100 cs. 300
B. Ayres, 593 1,779
Falklands, 65 92 cks. 196 pkgs. £1,456
Algoa Bay, 7 t. 254
E. London, 100 drs. 21

**Soda—**
Auckland, 1 t. £9
Brussels, 5 c. 10

**Soda Ash—**
Sydney, 25 t. £209
Bombay, 16 c. 8

**Soda Crystals—**
Newcastle, 10 t. 15 c. £35
Sydney, 10 38

**Soda Salts—**
New York, 3 t. 2 c. £30

**Sodium Bicarbonate—**
Napier, 10 c. £4
Trinidad, 1 t. 10 12
Sydney, 2 5 12
E. London, 1 3 10
Calcutta, 14 6
Auckland, 1 10 11
Hong Kong, 10 5
Demerara, 1 8
Brisbane, 1 10 11

**Sodium Carbonate—**
Wellington, 1 t. £8
Algoa Bay, 10 c. 9

**Sodium Hyposulphite—**
Hong Kong, 6 c. £3

**Sodium Nitrate—**
Auckland, 2 t. 2 c. £20

**Sodium Silicate—**
Auckland, 6 t. 4 c. £38
Hobart, 4 5 18

**Sodium Tartrate—**
Melbourne, 5 c. £17

**Strontium Carbonate—**
New York, 19 c. £43

**Sulphur—**
Algoa Bay, 4 t. 9 c. £51
Pt. Elizabeth, 2 24

**Sulphuric Acid—**
Penang, 1 t. 18 c. £20
Colombo, 3 37

**Tartaric Acid—**
Messina, 5 t. £510
Melbourne, 1 10 c. 153
Cape Town, 2 11
Sydney, 1 103
E. London, 3 kgs. 13

## LIVERPOOL.

*Week ending November 16th.*

**Alkali Waste—**
Antwerp, 4 t. 6 c. £13

**Alum—**
Montreal, 5 t. 4 c. £25
Maranham, 1 3 6
Halifax, 2 5 11
Melbourne, 5 9 28
San Francisco, 20 6 99
Constantinople, 4 12 25
Malta, 2 12
Rosario, 4 18 28
Valencia, 5 5 24
Portland, O., 6 36

**Alumina Sulphate—**
Passages, 6 t. £33
B. Ayres, 5 12 c. 2 q. 16

**Aluminous Cake—**
Calcutta, 11 t. 2 c. £49

**Ammonia—**
Halifax, 10 c. 3 q. £22

**Ammonium Carbonate—**
Barcelona, 2 t. 2 c. £69
Rouen, 1 19 50

**Ammonium Chloride—**
Salonica, 5 c. £8
Smyrna, 18 30
Alexandria, 1 t. 1 36
Santander, 10 6 q. 17
Philadelphia, 17 13 2 402
Trieste, 1 1 1 33
Rotterdam, 1 18 33
San Francisco, 2 11 55

**Ammonium Sulphate—**
Alicante, 8 t. 3 q. £82
Valencia, 174 11 c. 1,758
Malaga, 50 16 2 508
Bilbao, 10 5 2 104
Bordeaux, 10 2 105
Montreal, 8 3 85

**Antimony—**
Shanghai, 1 cs.

**Antimony Regulus—**
Valparaiso, 1 t. 1 q. £44

**Asbestos—**
B. Ayres, 2 cs.
Bahia, 1 ble.
Manaos, 1
Para, 2

**Bleaching Powder—**
Amsterdam, 2 cks.
Baltimore, 192
Batoum, 6
Boston, 818
Constantinople, 21
Havana, 20 brls.
Lisbon, 1
Montreal, 171
New York, 411 147 25 bxs.
Philadelphia, 123 30 cs.
Valparaiso, 100
Vera Cruz, 50
Bombay, 11
Calcutta, 174
Cartagena, Sp., 6
Colombo, 1
Genoa, 32
Ghent, 68
Oporto, 15
New York, 100 £411
Boston, 86 373

**Boracic Acid—**
Antwerp, 1 t. 4 c. £32

**Borax—**
Alexandria, 19 c. £28
Borax, 5 t. 12 3 q. 162
Rotterdam, 4 18 3 143
Hamburg, 2 1 61
Halifax, 7 1 11
Nantes, 1 2 30

**Calcium Chloride—**
Odessa, 15 t. 2 c. £34
Melbourne, 10 3 23
M. Video, 2 10 8

**Carbolic Acid—**
Rouen, 6 t. 5 c. £83
Odessa, 5 cs. 9 3 q. 40
San Francisco, 1 9
Bombay, 12 22

**Caustic Potash—**
New York, 2 t. 13 c. £109
" 5 6 174
Baltimore, 6 15 135

**Caustic Soda—**
Algoa Bay, 31 cs. 5 dms.
Amsterdam, 60 130 kgs.
Bahia, 30 51
Bari, 127
Bombay, 200
Boston, 260
B. Ayres, 150 50
Ceara, 30
Constantinople, 30
Galatz, 221 200
Genoa, 50
Ghent, 6
Ibrail, 65
Kansas City, 50
Lisbon, 7
Malta, 18
Melbourne, 87
M. Video, 50 100 brls.
Montreal, 5 cks. 170 5
New York, 872 50 100
Pt. Natal, 12 bxs.
Quebec, 15
Rangoon, 26
Rotterdam, 30 5
St. Nazaire, 114
San Juan, 6
Sydney, 193
Valparaiso, 35
Vigo, 12
Alicante, 30
Baltimore, 135
Barcelona, 200 60
Calcutta, 107
Capetown, 5
Cartagena, Sp., 10
Chicago, 100
Fiume, 122
Halifax, 35
Havre, 9
Malaga, 6 cks. 92
Milwaukee, 200
Odessa, 105
Pelotas, 226
Penang, 30
Philadelphia, 50
Rouen, 34
San Sebastian, 60
Sourabaya, 100
Santander, 35
Seville, 307
Tarragona, 25 215
Trieste, 90
Valencia, 40
Venice, 5 cks.
Yokohama, 25

**Chemicals** (*otherwise undescribed*)
Genoa, 1 t. 15 c. £52
Boston, 1 3 42
Stockholm, 1 30
Beyrout, 4 6
Hamburg, 3 3 107
Montreal, 1 30
Odessa, 5 5 3 158
Valparaiso, 2 68
Rangoon, 5 10

**China Clay—**
Bombay, 6 t.
Boston, 1,553½
B. Ayres, 20 13 c.
Calcutta, 600 cks.
Naples, 2
Philadelphia, 10

**Chromate of Iron—**
Antwerp, 8 c. 2 q. £10

**Chromium Acetate—**
Naples, 10 c. 2 q. £27

**Citric Acid—**
Valparaiso, 3 c. 2 q. £35

**Coal Products—**
**Aniline Colours**
Salonica, 3 cs.
**Aniline Oil**
Antwerp, 1 brl.
Barcelona, 10 dms.
Rouen, 21
**Aniline Salts**
Barcelona, 40 cks.
Rouen, 5
**Creosote Oil**
Galveston, 750 brls.
**Tar Oil**
Pernambuco, 10 cks.

**Cobalt Oxide—**
Gijon, 1 c. £34

**Colours—**
Iquique, 5 cs. 4 fkns.
Montreal, 2
New York, 4

**Copperas—**
Galatz, 2 t. £5
Smyrna, 6 12 c. 13
Calcutta, 14 23
Beyrout, 7 16 14

**Copper Sulphate—**
Barcelona, 3 t. 5 c. 1 q. £42
Antwerp, 17 3 18

Rouen, 27 405
Sydney, 5 1 5
Rotterdam, 1 19 27
Genoa, 8 14 1 119
Salonica, 18 2 23
Venice, 31 1 429

**Disinfectants—**
Bombay, 7 t. 13 c. 3 q. £65
Alexandria, 9 cks. 29

**Dried Blood—**
Barbadoes, 30 t. £220
Rouen, 52 6 c. 350

**Flowers of Sulphur—**
Havana, 12 c. £5

**Gypsum—**
New York, 35 t. 2 c. £129

**Iron Sulphate—**
Rio de Janeiro, 2 t. 18 c. £6

**Lime—**
Lagos, 6 cks.

**Magnesium Chloride—**
Bombay, 4 t. 8 c. 2 q. £85
Hamburg, 2 dms.

**Magnesium Sulphate—**
Bombay, 135 bgs. 100 kgs.
Corinto, 8 cks.
Lisbon, 2

**Manure—**
Malaga, 10 t. £80

**Metallic Sodium—**
Rotterdam, 2 t. 2 c. £404

**Muriatic Acid—**
M. Video, 5 c. £6

**Oxalic Acid—**
Barcelona, 5 c. 2 q. £136

**Paint—**
Alexandria, 4 cks.
Amsterdam, 6 kgs. 6 dms.
Antofagasta, 2 34 cs.
Arica, 33
Beyrout, 6 11
B. Ayres, 5
Calcutta, 200
Coquimbo, 3 12
Half Jack, 16
Kingston, Jam., 500
Lagos, 25
Loanda, 9 20
Mollendo, 3
Mossamedes, 2
New York, 100
Port-au-Prince, 8
St. Thomas, 75
Savanilla, 180
Sierra Leone, 300
Trieste, 8
Vera Cruz, 11
Warri, 5
Caibarien, 2
Callao, 10
Candia, 55
Cienfuegos, 3 50
Constantinople, 3
Curacao, 30 pkgs. 1
Havana, 3
Pernambuco, 1 1
Rotterdam, 3
Salaora, 8 brls. 30
St. Domingo, 4
,, John's, Nfld., 2 1
Santos, 10
Valparaiso, 1

**Painters' Colours—**
Colon, 50 kgs.
Kingston, Jam., 1
Larissa, 60
Lisbon, 80
Loanda, 1 cs.
Montreal, 165 cks.
New York, 1 4 3 150 brls.
Pernambuco, 10
Philadelphia, 240
St. John's, Nfld., 20
Stockholm, 2 bxs.
Sydney, 2
Syra, 5
Valparaiso, 5ℓ cs. 5 3
Bahia, 3
B. Ayres, 10 20 149
Candia, 7
Fernando Po, 1
Guantanamo, 11
Havana, 38
Malta, 500 2
Oporto, 20
Rangoon, 50 bgs.
Seville, 12

**Paraffin Wax—**
Leghorn, 176 cs.
Odessa, 15 bls
Patras, 5
Venice, 12

**Phosphorus—**
Santander, 1 c. £11

**Picric Acid—**
New York, 18 c. £90

**Pitch—**
Bombay, 3 kgs.
Cadiz, 240 t.
Marseilles, 18 cks.
Rouen, 1

**Potassium Bichromate—**
Venice, 1 t. 6 c. £102
Odessa, 3 cks. 42
Genoa, 4 136

**Potassium Chlorate—**
Vigo, 12 c. £32
Santander, 5 17
St. Petersburg, 5 t. 288
New York, 26 10 1,284
Gothenburg. 10 25
Rotterdam, 1 6 76
Yokohama, 4 199
Copenhagen, 2 10 141
Genoa, 2 10 160
Guadalgaro, 10 30
Antwerp, 6 196
Vera Cruz, 1 58
Stettin, 5 282
Boston, 5 263
Hiogo, 21 10 1,196

**Potassium Prussiate—**
Rio de Janeiro, 10 c. £45

**Salt—**
Accra, 36¾ t.
Akassa, 200
Arica, 10 cs.
Barracoe, 22
Benin, 10
Boston, 130
Brass, 28½
Cameroons, 16
Cape Lopez, 4½
Conakry, 35
Galveston, 403
Hamburg, 73 5 c.
Isles de Los, 100
Lagos, 250
Mobile, 982
Monrovia, 7¼
M. Video, 50
Montreal, 447 12
N. Kombi, 200
N. Orleans, 1,148
Rio de Janeiro, 8
,, Nunez, 300 9
St. John's, Nfld., 15
San Francisco, 52 6
Sydney, 225
Valparaiso, 5 7
Vancouver. 75
Victoria, V.I., 335
Warri, 25¾
Amsterdam, 162
Antwerp, 320
Assinee, 5
Axim, 5
Boland, 5
Calcutta, 2,813
C. C. Castle, 5
Chicago, 130
Copenhagen, 538
Ghent, 105
Kansas City, 65
Melbourne, 176
New York, 20
Opobo, 10
Rotterdam, 234
Rouen, 10
Salt Pond, 16¼
Sierra Leone, 425
Singapore, 16

**Salt Cake—**
Baltimore, 252 t. 15 c. £554

**Saltpetre—**
Rosario, 1 t. £22
Bahia, 1 19 c. 51
M. Video, 1 5 31
Halifax, 3 3

**Sheep Dip—**
B. Ayres, 2 t. 15 c. £75
M. Video, 2 10 45

**Soap—**
Amsterdam, 150 bxs. 500 cs.
Belize, 250
Bombay, 1,340 23
Brussels, 400
B. Ayres, 1
C. C. Castle, 10
Colon, 150
Iquique, 90 1
Lagos, 30
Las Palmas, 20
Montreal, 23 kgs. 12 2 brls.
New York, 150 53 25 tcs.
Piræus, 1
Pt. Said, 4
St. John's, Nfld., 356 2
,, Thomas, 200 1
Savanilla, 8
Shanghai, 1,010
Sierra Leone, 250 1
Singapore, 25
Teneriffe, 1,080
Toronto, 800
Trinidad, 200
Valparaiso, 500 22
Accra, 140
Aden, 400
Akassa, 20
Algoa Bay, 700
Axim, 30
Barbadoes, 500
Benin, 150
Brass, 200
Canania, 260
Capetown, 1,500
Conakry, 40
Dry Harbour, 70
E. London, 650
Elmina, 100
Genoa, 50
Gibraltar, 230
Gr. Bassa, 1
Kingston, Jam., 2
Kurrachee, 875
Malta, 20 5
Manaos, 627
Natal, 1,040
New Orleans, 225
Opobo, 200
Oran, 40
Oratava, 100
Patras, 4 pkgs.
Pt. Elizabeth, 550
Rangoon, 500
Rouen, 5
San Juan, 200
Smyrna, 40
Sydney, 900
Warre, 450
Zanzibar, 3,750

**Soda Alkali—**
Odessa, 85 brls.
Seville, 50
Toronto, 50

**Soda Ash—**
Amsterdam, 55 cks.
Bahia, 251 50 brls.
Baltimore, 1,044 400 bgs.
Boston, 522 2,600
B. Ayres, 100 cs. 155
Corfu, 250
Hamburg, 150
Hamilton, 400
Leghorn, 10
Lisbon, 10
Montreal, 28 720
New Orleans, 13
,, York, 789 152 tcs. 6,120
Philadelphia, 1,328 800
Rio de Janeiro, 20 brls.
San Francisco, 65
Smyrna, 75
Venice, 16
Algoa Bay, 12
Antwerp, 5
Batavia, 49
Bombay, 20 kgs.
Callao, 50
Constantinople, 20
Oporto, 10 12
Pelotas, 505
Portland, Or., 35
Sydney, 406

**Soda Crystals—**
Boston, 560 cks. 280 brls.
Kingston, Ja., 5
Montreal, 334 50 kgs.
New York, 140
Philadelphia, 840 167
St. John's, Nfld., 60
San Francisco, 200
B. Ayres, 150
Halifax, 50
Hong Kong, 500
Oporto, 20
Pernambuco, 10
Portland, Or., 300 260
Sydney, 68

**Sodium Arseniate—**
Magog, 6 cks.

**Sodium Biborate—**
Antwerp, 11 cks.
Portland, 13 brls.

**Sodium Bicarbonate—**
Antwerp, 183 kgs. 20 cks.
Carthagena, S., 25
Genoa, 134 20
Hamburg, 265
Havre, 135 2
Jamaica, 30
London, Ont., 100
Melbourne, 300
Mexico City, 50
New Orleans, 1
Rotterdam, 50
St. John's, Nfld., 30
San Francisco, 45
Valparaiso, 15
Vancouver, 3
Vera Cruz, 40
Almeria, 40
Barcelona, 100
B. Ayres, 180
Catania, 25
Malaga, 40
Marseilles, 100
Naples, 125
Odessa, 850
Portland, Or., 200 15
Rouen,
St. John's, N.B., 400
,, Petersburg, 500
Sydney, 657 60
Santander, 20
Singapore, 15
Victoria, V.I., 3
Yokohama, 1,500

**Sodium Bichromate—**
Lisbon, 1 ck.

**Sodium Carbonate—**
Boston, 168 brls.
New York, 112

**Sodium Chlorate—**
New York, 140 kgs.
Boston, 50
St. Petersburg, 30

**Sodium Silicate—**
Alicante, 16 cks.
Carthagena, S., 12
La Guayra, 10
Seville, 82 150 brls.
Auckland, 12
Santander, 4

**Sodium Sulphate—**
Santander, 70 brls.

**Sulphur—**
Montreal, 1 t. 10 c.
Rouen, 5
Havana, 1 10
Rotterdam, 600 bgs.
Hamburg, 10 1
Boston, 1,336 bgs. 50 t. 2 c.
Bushire, 10
Halifax, 7

**Sulphuric Acid—**
Kurrachee, 9 t. 18 c.
Manaos, 5

**Superphosphate—**
Philadelphia, 500 t.
Gr. Canary, 20

**Tallow—**
Assinee, 5 cks.
Valencia, 2
Kingston, Jam., 10 kgs.

**Turpentine—**
Antofagasta, 120 dms.
Salonica, 10 brls.
Bombay, 3
Madras, 50 dms.

**Varnish—**
Barbadoes, 8 brls.
Bombay, 1 cs.
Lisbon, 1 ck.
Batavia, 6 dms.
B. Ayres, 3 cs.
Genoa, 6
Piræus, 3

**Vermilion—**
Calcutta, 4 cks.

**White Lead—**
Bahia, 50 kgs.
Callao, 26
Genoa, 3 cks.

**Zinc Chloride—**
Bombay, 9 t. 16 c.

## HULL.

*Week ending November*

**Alkali—**
Abo, 122 cks.
Bergen, 3 cs.
Bremen, 6
Helsingfors, 1

**Aluminium—**
Rotterdam, 1 ck.

**Benzol—**
Ghent, 15 cks.
**Bleaching Powder—**
Copenhagen, 2 cks.
Helsingfors, 22
Stettin, 224
**Caustic Soda—**
Abo, 18 dms.
Dunkirk, 19
Gothenburg, 2
Harlingen, 19
Helsingfors, 20
Rotterdam, 37
Riga, 50
Stettin, 104
Wyburg, 8 cks.
**Chemicals** *(otherwise undescribed)*
Antwerp, 22 cks. 22 cs.
Abo, 74 10 pks.
Bordeaux, 30
Christiania, 1,382 slbs. 1 30 pkgs.
Copenhagen, 2 cks. 13
Constantinople, 60
Dunkirk, 28
Drontheim, 15 dms.
Danzig, 32 cks. 30
Genoa, 5 1
Gothenburg, 4 1 5
Hamburg, 49 46 20
Hango, 20
Konigsberg, 1
Marseilles, 10
New York, 48 1
Odessa, 778
Rouen, 15 1
Rotterdam, 21 1
Riga, 86 2
Stettin, 18 10
Stockholm, 3
**Cottonseed Oil—**
Antwerp, 521 c.
Bremen, 50
Danzig, 50
Flushing, 100
Gothenburg, 4
Hamburg, 2,646
Konigsberg, 200
Leghorn, 100
Marseilles, 2,370
Naples, 55
Norrkoping, 17
Rotterdam, 3,629
Stettin, 502
Stockholm, 170
**Creosote—**
Danzig, 125 cks.
**Dyestuffs** *(otherwise undescribed)*
Danzig, 2 cs. 55 cks.
New York, 10 dms.
**Linseed Oil—**
Antwerp, 41 c.
Bergen, 35
Bordeaux, 21
Christiania, 351
Copenhagen, 55
Dunkirk, 36
Drontheim, 110
Hamburg, 225
Rotterdam, 34
**Manure—**
Antwerp, 9 bgs.
Bordeaux, 10 t.
Dunkirk, 40
Rotterdam, 1,453
**Mineral White—**
Rouen, 125 bls.
Rotterdam, 200
**Ochre—**
Antwerp, 2 cks.
**Painters' Colours—**
Antwerp, 73 cks. 1 cs.
Amsterdam, 9
Aalesund, 1
Bergen, 100
Bordeaux, 4 1 dm.
Christiansand, 197 pks. 44
Christiania, 1 92 1 cs.
Copenhagen, 10 1
Drontheim, 1 40 15
Ghent, 19 1
Genoa, 2
Gothenburg, 13 pkgs.
Hamburg, 31
Helsingfors, 3 6
Konigsberg, 8
Naples, 1
New York, 409
Odessa, 425
Rouen, 12
Rotterdam, 3
Riga, 30
Stettin, 32 1
Stockholm, 3

**Pitch—**
Antwerp, 412 t.
Dunkirk, 160
Helsingfors, 118 cks.
**Salt—**
Bergen, 1 cs.
**Size—**
Flushing, 22 cks.
**Tallow—**
Gothenburg, 15 cks.
**Tar—**
Christiania, 5 cks.
**Varnish—**
Antwerp, 1 ck.
Ghent, 2 1 cs.
Genoa, 1 3 dms.
Naples, 1 10

## GLASGOW.

*Week ending November 17th.*

**Ammonium Sulphate—**
Trinidad, 24 t. £130
Genoa, 40 6¼ c. 430
Bordeaux, 10 3¾ 103
New York, 26 5½ 300
Demerara, 416 18¾ 4,241
**Barytes—**
Melbourne, 6 t. 3 c. £20. 10s.
**Benzol—**
Rotterdam, 20 pns. £160
**Bichrome—**
Rouen, 5 t. £190
Antwerp, 21 19¾ c. 534
**Borax—**
Montreal, 3 t. 3½ c. £87
**Castor Oil—**
Gibraltar, 1 t. 10¾ c. £39
**Chemicals** *(otherwise undescribed)*
Lisbon, £110
**Coal Products—**
**Alizarine**
Rotterdam, 15 c. £70
**Alizarine Oil**
Lisbon, £38
**Aniline**
Melbourne, £8. 10s.
**Aniline Colours**
Montreal, £26
**Creosote—**
Bordeaux, 217 t. 3 c. £390
**Dyestuffs—**
**Argols**
Montreal, 1 t. 6¾ c. £20
**Extracts**
Montreal, 3 t. 11½ c. £144
**Fustic Extract**
Montreal, £120
**Patent Indigo**
Melbourne, 46½ t. £87
**Turmeric**
Montreal, 6 t. 14½ c. £144
**Valonia**
Melbourne, 10 t. 14¾ c. £171
**Farina—**
Italy, 6 t. £79
Antwerp, 4 18 c. 55
**Lead Acetate—**
Montreal, 3 t. 9¾ c. £52
**Linseed Oil—**
Montreal, 10¾ t. £155
Hong Kong, 500 glns. 50
**Litharge—**
Montreal, 8 t. 18½ c. £128
**Magnesium Sulphate—**
Montreal, 8 t. 1½ c. £24
**Manure—**
Italy, 39 t. 8 c. £250
Barbadoes, 100 1,000
Manzanillo, C., 4 14¾ 36
Demerara, 201 17 1,766
**Naphtha—**
Bordeaux, 22 t. 3½ c. £300
**Naphthalene—**
Bordeaux, 28 t. 9 c. £30
**Ochre—**
New York, 6 t. 18 c. £101
**Paint—**
Gibraltar, 1 t. 18½ c. £43. 17s.
Italy, £225
New York, 6 17 126
Trinidad, 1 16½ 45
Demerara, 1 4¾ £25. 11s.
Singapore, 19 13¾ £247
Shanghai, 2 6¾ 146

**Painters' Colours—**
Malta, 4 t. 5 c. £89
Hong Kong, 3 6½ 84
**Paraffin Wax—**
Italy, 30 t. 5 c. £770
Rouen, 13 20
Hungary, 1 13¾ 53
Bordeaux, 1 2¾ 56
Genoa, 4 12½ 131
Japan, 20 17 530
**Phosphoric Acid—**
Trinidad, 4 t. 10¾ c. £115
**Pitch—**
Genoa, 53 t. 17 c. £90
Gothenburg, 106 1¾ 272
Amsterdam, 125 187
Caen, 430
Genoa, 100 100
**Potassium Bichromate—**
Italy, 23 t. 2 c. £871
Amsterdam, 51 cks. 582
Philadelphia, 6 19 260
Japan, 5 199
Rotterdam, 4 188
**Potassium Sulphate—**
Demerara, 6 t. 1 c. £62
**Rosin Oil—**
Rotterdam, 10 brls. £20
**Salt—**
Trinidad, £90
**Salt Cake—**
Antwerp, 560 t. 17 c. £1,020
**Soap—**
Lisbon, 2 t. 18 c. £57
**Soda Ash—**
New York, 11 t. 10 c. £63
**Sodium Bichromate—**
Italy, 5 t. 11 c. £184
**Sulphur—**
Demerara, 8 t. 6¼ c. 51
**Sulphuric Acid**
Demerara, 6½ t. £56
M. Video, 1 13 c. 14
**Tallow—**
Trinidad, 7 t. 5¾ c. £110
**Tar—**
Colombo, £36. 10s.
Calcutta, 87 t. 8½ c. £133
Colombo, 11 3 900
**Tin Crystals—**
Lisbon, 7 £26
**Varnish—**
Singapore, 10¾ c. £39
Hong Kong, 6¼ 18 lbs. 24
**White Lead—**
Montreal, 12½ t. £215
Trinidad, 1 5 c. £25. 10s.

## TYNE.

*Week ending November 12th.*

**Alkali—**
Christiania, 5 t. 10 c.
Rotterdam, 2 12
**Ammonium Carbonate—**
Montreal, 1 t.
**Ammonium Sulphate—**
Rotterdam, 80 t.
Valencia, 65
**Antimony—**
Hamburg, 20 t. 10 c.
Rotterdam, 6
Copenhagen, 16
**Arsenic—**
Christiania, 14 c.
Gothenburg, 5 t. 8
**Barium Binoxide—**
Rouen, 6 t.
**Barium Chlorate—**
Montreal, 20 t.
**Barytes—**
Hamburg, 100 t.
Rouen, 10 10 c.
**Bleaching Powder—**
Hamburg, 36 t. 5 c.
Antwerp, 29 2
Rouen, 5 2
Amsterdam, 95 13
Christiania, 44 13
Horsens, 1 9
Montreal, 41 8
Rotterdam, 37 13
Ghent, 6
Trondhjeim, 10 1
Copenhagen, 44 8
Gothenburg, 6 2

**Caustic Soda—**
Antwerp, 13 t.
Rouen, 3 9 c.
Amsterdam, 9 17
Pasages, 58
Lisbon, 4 18
Montreal, 29
Genoa, 14 10
Copenhagen, 1 9
**Colours—**
Naples, 5 c.
**Copperas—**
Gothenburg, 4 t. 15 c.
**Linseed Oil—**
Antwerp, 17 c.
**Litharge—**
Rouen, 6 t.
Lisbon, 3 8 c.
Montreal, 20 6
Rotterdam, 3 10
Gothenburg, 10
**Magnesia—**
Hamburg, 17 c.
**Manganese—**
Gothenburg, 60 cks.
**Paint—**
Rouen, 1 c.
Rotterdam, 6
Genoa, 1 t. 9
**Pitch—**
Jersey, 2 t.
**Soda—**
Montreal, 98 t. 5 c.
Sydney, 200
**Soda Ash—**
Christiania, 39 t. 19 c.
**Sodium Hyposulphite—**
Antwerp, 1 t. 2 c.
**Sodium Sulphate—**
Trondhjeim, 10 t.
Copenhagen, 13 5 c.
**Sulphur—**
Hamburg, 50 t.
Antwerp, 25 4 c.
Rotterdam, 2 10
Ghent, 6 1
Ronneby, 250
Gothenburg, 50
**Tallow—**
Hamburg, 2 t. 9 c.
**Varnish—**
Naples, 11 c.
**White Lead—**
Hamburg, 2 t. 2 c.
Montreal, 81 6
Copenhagen, 1 9

## GOOLE.

*Week ending November 2nd.*

**Alum—**
Rotterdam, 20 cks.
**Benzol—**
Ghent, 48 drs.
Rotterdam, 131 cks.
**Bleaching Powder—**
Dunkirk, 21 cks.
**Chemicals** *(otherwise undescribed)*
Ghent, 10 cks.
Rotterdam, 61
**Coal Products** *(otherwise undesc'd.)*
Ghent, 3 cks.
Rotterdam, 97
Hamburg, 308
**Dyestuffs** *(otherwise undescribed)*
Boulogne, 3 cs. 1 ck.
Ghent, 2 dms.
Rotterdam, 3
**Manure—**
Bruges, 400 bgs.
Ghent, 174
Rotterdam, 100
**Pitch—**
Antwerp, 100 t.
Boulogne, 48 tins.

## GRIMSBY.

*Week ending November 5th.*

**Ammonium Sulphate—**
Hamburg, 20 t.
**Chemicals** *(otherwise undescribed)*
Hamburg, 6 pkgs.
**Coal Products** *(otherwise undes.)*
Dieppe, 167 cks.
**Dyestuffs** *(otherwise undescribed)*
Dieppe, 32 bgs.

# PRICES CURRENT.

WEDNESDAY, Nov. 23rd, 1892

PREPARED BY HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids :—** | | | | |
| Acetic, 25 °/₀ and 40 °/₀ | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | | 50/- | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 2¼ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3¼ |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 °/₀) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 10 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 1 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 10 | 2 | 6 |
| ,, ,, (grey) Hull | ,, | 10 | 2 | 6 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6 |
| Aniline Salt ,, | ,, | 0 | 0 | 5⅞ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 3 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes :—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8 |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 0 |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 6 |
| ,, 50/90 ,, | ,, | 0 | 1 | 3 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 4⅞ |
| ,, (crude 60°) | per gallon | 0 | 1 | 5 |
| Creosote (ordinary) | ,, | 0 | 0 | 1½ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 2 |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 0 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 1 | 0 |
| Coke-oven Oils (crude) | ,, | 0 | 1 | 1 |
| Copper | per ton | 47 | 1 | 3 |
| ,, Sulphate | ,, | 15 | 0 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 10 | 0 |
| ,, Litharge Flake (ex ship) | ,, | 13 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, brown | ,, | 17 | 5 | 0 |
| ,, Carbonate (white | ,, | 20 | 0 | 0 |
| *Nitrate* | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 6 | 5 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 6 |
| Naphtha (Wood), Solvent | ,, | 0 | 3 | 9 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 4 | 7½ |
| **Oils :—** | | | | |
| Cotton-seed | per ton | 18 | 5 | 0 |
| Linseed | ,, | 19 | 5 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 12 | 6 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 | 0 |
| Silver (metal) | per oz. | 0 | 3 | 2 13/16 |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 2 | 6 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 5 | 15 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 18 | 0 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 15 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Borate (Borax) | net, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | net pr. ton (10 ton lots) | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, (10 ton lots) | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 10 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 10½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¾ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 12 | 6 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7¾ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7½ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone : Best Quality (nominal) | ,, | 4 | 12 | 6 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 97 | 10 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 18 | 17 | 6 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# CHEMICAL TRADE JOURNAL

AND

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rtisements intended for insertion in the current week's issue reach the office by **Wednesday morning** at the latest.

## CURRENT TOPICS.

### THE BITER BIT.

THERE has been ample evidence during the past fourteen years that the enforcement of the Sale of Food and Drugs Act, backed as it has been by the work of our public analysts, has effected a great improvement in the quality of the provisions purveyed to the public.

The check which has been placed upon adulteration by these means, no doubt, has acted beneficially for the honest retail dealer, and in fact for all retail dealers, since we ought, until we have evidence to the contrary, to assume that one and all are honest. Still we can hardly think that, prior to the passing of the Food and Drugs Act, the public were not subject to a species of mild imposition, and undoubtedly the best way to protect the public was to place restraint on those who supplied them. By so doing, not only was second-hand adulteration prevented, but the first step towards reaching the fountain-head was made. The retailer being first held responsible for the quality of his goods, it is evident that the wholesale trade would soon be affected. A retailer selling goods which are supplied to him already adulterated, indirectly derives benefit by the sale of the goods, but once made responsible if detected in selling goods of this kind, although doing so unwittingly, there is not much time lost before the blame is shifted on to the right shoulders.

This statement is borne out by the fact that a deputation from the Federation of Grocers' Associations waited on the Secretary to the Local Government Board last week, asking for an amendment of the present Act, and to make the law more effective against the "real offenders."

So long as the public were the sufferers it did not matter, but when the shoe begins to pinch in another quarter, it is not long before a stir is made and individual interests are cared for.

And quite right too, we fully appreciate the dislike which a retail dealer has to paying a fine of £5. for selling butter which he thought was pure but which on analysis proved not to be. We should like to see an invoice made to act as a warranty that the goods supplied to the retailer were actually, what according to the invoice they purport to be. Further we are pleased to hear it requested that provision be made to take proceedings against the person or firm giving a warranty where any such warranty is pleaded in defence to proceedings. If this were done a person summoned for alleged adulteration and intending to rely upon an invoice as a defence would be able at the time the summons was made returnable to bring the dealer, manufacturer, or packer before the Court, and the whole matter could then be dealt with, and when the person summoned had proved that he sold the article in the same condition as received, the question would be between the inspector and the dealer.

By all means let the retailer take every precaution he can to protect himself, for we congratulate ourselves that by so

doing the public will be more effectually protected than by any amount of special legislation, while it shows that we have been hammering at the right nail, since while driving the nail home the loose screw has been found and may now be tightened.

### NO "T" OR SIXTY POUNDS.

The prosecution of the Cheshire Alkali Company by the Northwich Rural Sanitary Authority has ultimately proved an interesting case for both manufacturers and River Pollution Committees. The proceedings seem to have ultimately become rather complicated, and the orders made from time to time have, it would appear, not rightly expressed the intentions of His Honour Judge Wynne Ffoulkes in the matter. The position briefly is this. Mr. Fletcher, on behalf of the Sanitary Authority, brings a charge against the Cheshire Alkali Company for river pollution on five days. It is, however, contended by the counsel for defendants that according to what is considered to be the spirit of the last order made, his company were only liable to pay fines for two out of the five days.

The original order made after the first hearing of the case was "that the defendants abstain from putting or causing to be put, or fall in or knowingly permit to fall, or be carried into the Croco, thence into the Dane, solid refuse . . . and it is further ordered that in case the defendants make default in complying with this order they shall pay to the complainants £20 for every day during which they are in default. The defendants having given an undertaking to abstain from any further commission of the same offence, it is further ordered that this order be suspended for a period of two months from this date, 12th October, and it is further ordered, in the case of any breach of the said undertaking, the complainants may apply for the removal of such suspension and the enforcement of this order, and payment of £20. during every day in which the defendants are in default."

Such default, it appears, did actually take place, the defendants' lime tanks bursting and leading to a pollution of the aforesaid rivers on three consecutive days, namely, the 30th and 31st of October and 1st November. Forthwith an *ex parte* application was made by the complainants and the following order was made:—"It is ordered that the suspension of the said order be, and the same is hereby removed, and the complainants be at liberty to enforce the said order, as from the day of the date thereof."

Now the counsel for the defendants contended that in this last order the word "hereof" should have occurred in the place of the word "thereof." This His Honour Judge Ffoulkes agreed with. Forthwith counsel for the complainant reminded His Honour that at the time when the suspension was made he pointed out to His Honour that a difficulty might arise on this point because if the word "hereof" was used practically the complainants would have had an opportunity of discharging their reservoirs without a penalty, and His Honour then said that was not his intention at all, and that the breach of the undertaking would be equivalent to a breach of the order. Counsel for the defendants then explained that if the reading which he had suggested was accepted his Company had by no means obtained a clearing for nothing. His Company had been busy spending some £250. trying to make better arrangements for storing their lime sludge, as having made an undertaking they did not wish it to be thought that they had not done their best to fulfil that undertaking.

His Honour stated that he thought the difficu "thereof" and "hereof" was a substantial one and t ought to be "hereof," and consequently the defen could only be fined for two out of the five days on pollution had taken place, since three of the days were to the date of the removal of the suspension, and His H made an order for a penalty of £20. a day for the 4th an November. It would seem had His Honour adhered t original word of the order the defendants would have subject to a fine of £100., but as His Honour saw abandon the superfluous "t" the defendants were spare loss of £60. Counsel for the complainants put in a claimer as far as any responsibility for the arising o difficulty was concerned, and His Honour stated th must have misunderstood the point, for he thought the plainants would see themselves that the case should finally stated.

### TOO MUCH OF A GOOD THING.

Manufacturers are prone to complain that they hampered unmercifully by Acts of Parliament, Inspe and Local Authorities, but badly off as they may be the better than their German neighbours in some t Judicious advertising is the only way to achieve succ business, and so far manufacturers in this country have it pretty well their own way, despite the prohibition signs, &c. In Berlin, however, the police recently p rather too assiduous for some people's likings, thoug doubtedly the public benefited by their action. A marv cosmetic possessing most potent properties, being pounded of some mysterious drugs, was advertised high low, in pretty much the same way that certain soaps an are in this country. The Berlin police, however, g know too much, and published directly under the o advertisement an official announcement to the effect analysis had shewn this particular cosmetic to be one o most ancient of "specifics," that it was poisonous, bein a weak, perfumed solution of mercuric chloride; and wh it sold at 11s. a bottle, the cost of production really amounted to a few half-pence. A good deal has bee about the necessity of educating our police. But p chemists may prove to be a doubtful blessing in some and we should not wonder if things have been a bit "ro with others in the same line, since the exposure o particular case in Berlin.

## THE NEW-CROSS TECHNICAL INSTITUTE

THE distribution of prizes in connection with this Institution, was established and is maintained by the Goldsmith's Com took place last week. The chair was taken by the Prime Wa the Company, Mr. R. Williams, who in making his opening addre that it was the first opportunity the governors had had of meeti general body of the students. The Institute had been opened a litt than a year, and they had every reason to be satisfied with the work done during that time. It was a source of much gratification to that they had been enabled to expend a large portion of their funds in a way which they hoped and believed would be for the b of their fellow-citizens all over London, but especially in the v of New-cross.

When the prizes and certificates, numbering over 500, had be tributed,

Lord Herschell, who met with a cordial reception, delivered address. It was impossible, he said, to come to that institute w being struck by the amazing success it had achieved. In a little than a year it had had 5,000 students. It had not been found create a sense of the want it intended to supply; on the contrary

want had long previously been felt. (Cheers.) The subject of technical education had of late years received particular attention. A little knowledge was said to be a dangerous thing. He ventured to think that it was better than ignorance. There was no danger in a little knowledge if its possessor realised how little it was, if the possession of it gave rise to a feeling of more humility than pride. No doubt there were some who had thought that this kind of technical training was of but trifling advantage in the contest of life. He believed this to be an erroneous idea. The various peoples of the world were coming into a competition that would have been impossible 20 or 30 years ago. The telegraph and fast ocean steamships had effected nothing less than a revolution. They brought distant nations close together, with the result that international competition increased far and wide. It was well that we should be awake to this fact, which, indeed, could not be realised too vividly; and we could hold our own only by taking care that the people were better educated. (Cheers.) He himself could entertain no doubt that any industrial and technical training would make them more capable than they had been. In some quarters there was a certain distrust of such training, on the ground that it led workmen to think themselves better than they were. This was an absolute delusion, and the sooner it was got rid of the better. The workman should have every opportunity of going to such institutions as that, and no impediment should be thrown in the way of his doing so. Another remarkable thing was the variety of the subjects mentioned in the list of prize-winners. Many men and women went through life without discovering what they had in them. Here full scope was provided for the intellectual gifts of all. (Cheers.) Scholarships were offered by the institute in the hope that they would induce boys to continue their education after leaving school, and the fees paid by artisans were lowered in cases where students entered classes directly connected with their callings. Generally, the work which the institute had undertaken was a boon to the community at large. (Cheers.)

On the motion of Sir Frederick Abel, seconded by Sir Richard Webster, a cordial vote of thanks to Lord Herschell was passed.

## SOME VARNISH GUMS.

AN interesting paper has been read before the Detroit Chemical Society by Mr. Jas. Stevenson, an abstract of which we give as it contains many useful items of information.

The discovery of varnish is not attributed to anyone, nor does any particular nation lay claim to having been the first to produce this now most important commodity, that in so many different forms is used to give brilliancy, finish and durability, to the thousand and one objects that go to make up our modern surroundings, from the ponderous railroad palace car to the tiny shining button on the baby's shoe. There is little doubt, however, that its manufacture as understood to-day is of comparatively recent date although a crude knowledge of certain varieties of varnish or lacquer is known to have existed at a very remote period.

Before commencing to give a little description of some of the gums used in making varnish it might not be out of place to propose the question, What is good varnish? and answer it as we understand it. Good varnish is a composition of oil, gum and turpentine, so united as to produce a substance which, when applied to the surface of an object, leaves on that object a smooth, glossy and impervious coating. Its functions are to increase the lustre and polish of said surface, and render it more easily kept clean; and further, by its high refractive power, to increase the transparency of surfaces that are by their porous nature rendered too opaque, and thus bring into view any grain or marking of natural growth that it may be desirable to show up, and still further, by its absolute insolubility, to protect perishable objects from the effects of damp or decay.

The most valuable of all fossil gums is a variety exported from Zanzibar, and known as such. The finest quality of it is found on the Wawandi river, and is of a beautiful amber colour. The outside of the pieces as found has the appearance of "goose-flesh" and is so described. Some authorities have attributed this feature to the result of internal contraction, while others think, and more probably, that the sandy soil in which it is always found imbedded may have caused these impressions. Zanzibar has a sp. gr. of 1·068 and the melting point is upwards of 450° Fah.

Other varieties come from Madagascar and Demarara and are conceded to be the yield of the same species of tree, a genus similar to the Hymenæa. The sp. gr. of these are lighter than Zanzibar, the Demerara having 1·030, with a melting point similar to Zanzibar.

The West Coast of Africa, too, furnishes valuable gums for varnish purposes, the principal varieties being known as Benguela and Angola. These are collected by the Bunda negroes and are called by them "Ocota Cocota," or "Mucocoto." They are collected in the Congo districts and are carried by them to the ports of shipment. The zone in which these copals occur is well defined, being a hilly, desolate tract between the mountains that runs parallel with the west coast line and the low broad land extending to the Atlantic. Only one tree flourishes on this desolate tract, which is about 700 miles long and from 3 to 50 miles, more or less, wide, and this is the "Baobab" which thrives either singly or in groups. The botanical source of these copals is not known. Many travellers and scientists have given their views on the subject, but their several deductions do not point to the same conclusion, and the belief prevails that the trees that produced these gums may be extinct.

*Manila copals* are so called from the fact of Manila being the chief port of shipment in the Philippine Islands, although practically no gum really does come from there. The great bulk of it comes from the Dutch East Indies, and is consigned to Amsterdam, where the principal sales are held. These copals are mostly used on the European continent, and in this country do not find much favour, although some of the better grades very much resemble Kauri in appearance. The botanical source of the Manila copal is unknown.

*Kauri Gum.*—Fifty years ago the Kauri gum of New Zealand was unknown as a varnish gum. To-day it ranks among the most popular.

Kauri gum is conceded to have been the resinous exudation of the pine tree of New Zealand, the *Dammara Australis*, and is found in the province of Auckland in open bush land where no vestige of the original trees remains, and is thus a convincing evidence of prehistoric forests. In other parts of the colony living forests exist, whose trees when tapped yield a resinous sap, quantities of which are found at the roots of trees in various stages of hardness between sap and fossil gum. In former days, Kauri was collected by the natives, the Taoris. Whites are now, however, doing a large portion of the digging. There are summer gum fields and winter gum fields. In the winter months it is usual to work on the ridges, because the rains that fall then soften the hard clayey ground and make the digging comparatively easy, at the same time making the depressions un-get-at-able or inconvenient, while in the summer, when the ridges become so hard and dry as to be difficult to work, the lower grounds become the fields of labour. Gum is found at a depth of several feet in the hollows, while on the ridges it is only a few inches below the surface and sometimes protrudes. The sp. gr. of Kauri is about 1·080, and its melting point about 400° F.

*Gum Damar* is the exudation of the *Dammara Orientalis*, the trees being periodically tapped for supplies. The principal varieties are Batavia from Java and Singapore and Padang, from Sumatra. Damar has a high sp. gr. and a low melting point.

Other gums are mastic, sandarac, benzoin and camphor, but these do not play so important a part as the foregoing.

## EXPORTS OF PETROLEUM FROM U.S.A.

THE chief of the Bureau of Statistics, Mr. S. G. Brock, gives the exports of petroleum and petroleum products from the United States during the month of October, 1892, and during the ten months ending October 31st as follows:—The total value of the shipments for October was £854,424. as against £768,020., in 1891; and for the ten months ending October 31st, 1892, £6,942,735. as opposed to £7,593,514., in 1891. The shipments were as follows:—

| | Gallons |
|---|---|
| **CRUDE PETROLEUM.** | |
| Total for October, 1892 | 9,853,540 |
| Total for October, 1891 | 11,653,357 |
| Total for 10 months ending October 31st, 1892 | 82,524,939 |
| Total for 10 months ending October 31st, 1891 | 73,846,718 |
| **NAPHTHAS.** | |
| Total for October, 1892 | 3,403,375 |
| Total for October, 1891 | 1,080,733 |
| Total for 10 months ending October 31st, 1892 | 13,002,362 |
| Total for 10 months ending October 31st, 1891 | 8,891,288 |
| **ILLUMINATING.** | |
| Total for October, 1892 | 58,597,609 |
| Total for October, 1891 | 44,066,739 |
| Total for 10 months ending October 31st, 1892 | 475,479,789 |
| Total for 10 months ending October 31st, 1891 | 438,670,412 |
| **LUBRICATING.** | |
| Total for October, 1892 | 3,347,287 |
| Total for October, 1891 | 3,259,741 |
| Total for 10 months ending October 31st, 1892 | 28,166,236 |
| Total for 10 months ending October 31st, 1891 | 26,956,697 |
| **RESIDUUM.** | |
| Total for October, 1892 | 1,260 |
| Total for October, 1891 | 1,596 |
| Total for 10 months ending October 31st, 1892 | 239,9 4 |
| Total for 10 months ending October 31st, 1891 | 915,892 |

## THE LABOUR COMMISSION.

IN the course of the evidence given before Mr. Mundella last week in connection with the chemical and paper trades, it was stated by the chairman of the United Alkali Co., Ltd., that the reports which were current to the effect that the men engaged in the trade were rendered insensible by the escape of noxious gases were not authentic. The sanitary arrangements were on the contrary satisfactory, and the men were allowed proper time for meals.

Out of the thirteen witnesses brought, three were examined, one of them stating that the teeth of those engaged in the saltcake department were liable to become coated with a black scum, but he had never known them drop out. The other ten witnesses, who were of a strong and healthy appearance, were not examined.

Mr. Ross, general secretary to the National Union of Paper Mill Workers, the headquarters of which society are at Manchester, stated, in reply to the chairman, that there was no uniformity in regard to wages. He considered that the unskilled hands had to work very long hours for little pay—some 72 hours a week for 15s.,—and he complained that in mills where there were no relief hands the operatives had sometimes to work 36 and 48 hours at a stretch, the rule being that no man must leave his work until his mate relieved him, and the latter being liable to be detained by accident or illness. Asked whether this often happened, he said it happened very frequently in some mills. It was not to the interest of the employer, he admitted, that long hours, involving careless work, should prevail. He thought some of the accidents that occurred might be avoided. Asked whether the machinery was not properly fenced, he replied that there was room for improvement at some mills. Another grievance was that the machine houses were not properly ventilated. He had no great faith in the factory inspector, but had never tried him. He wanted a law to compel an employer to give information relative to prices, etc., to the trade-union secretary in cases of dispute as to wages and the like. The Board of Trade should not be so entirely a traders' board as at present, and should comprise a department that could take some action in cases of dispute between employers and workpeople. He thought the Government should give its orders for paper to the manufacturer direct instead of going to a middleman, and that home products should get fair play by the imposition of a small duty on the foreign article.

## LIME ROCKS FROM MAINE, U.S.A.

By F. C. Robinson.

THE chief lime region of Maine is in Knox and Lincoln counties in the towns of Rockland, Thomaston, and Warren. Lime has been burned in that locality for a century or more and its reputation for building purposes is of the highest. I have recently had samples of the rock, which I collected myself, analyzed in my laboratory, and they show the general character which such lime must have.

The rock shows little sign of crystallization, but is gray, massive or finely granular, with appearance of stratification. Two kinds of rock are distinguished by the miners, called "soft rock" and "hard rock." The hard rock evidently contains more silica, and when it contains so much as to injure the quality of the lime it is called "poor rock." Streaks of poor rock are found in all the quarries and many have been abandoned on that account.

It will be noticed that the magnesia is small in most of the Rockland limes, but still it is always present and in one case amounts to over twenty per cent. On the other hand, some of the Warren rocks are true dolomites. These latter, too, are whiter in colour, and show distinct crystallization and cleavage.

Local names of quarries are given, but all those analyzed in each town are in close proximity, except that from Case and Glover Vein, which is a mile or more from the others in Rockland.

| | Soft rock Engine Quarry. | Soft rock Doherty Vein. | Hard Rock Doherty Vein. | Hard Rock Engine Quarry. | Soft Rock Ulmer Drain Quarry. | Soft Rock Case & Glover Vein. | Dolomite from Warren. | Dolomite from Warren. |
|---|---|---|---|---|---|---|---|---|
| Silica | 0·87 | 1·8 | 2.52 | 2·48 | 0.90 | 1·3 | 5.8 | 4·50 |
| Iron and alumina | 0·12 | 0·3 | 0·63 | 0·22 | 0·01 | 0·6 | 0·2 | 0·36 |
| Calcium carbonate | 98·60 | 77·2 | 93·85 | 95·94 | 98·90 | 98·6 | 52·2 | 53·72 |
| Magnesium carbonate | 0·22 | 20·8 | 2·79 | 1·27 | 0·41 | trace | 42·0 | 41·33 |
| Total | 99·81 | 100·1 | 99·79 | 99·91 | 100·22 | 100·5 | 100·02 | 99·91 |

The author also acknowledges his thanks to Mr. C. H. Cutts, of Bowdoin College, for the care with which the above analyses were conducted.

## THE COMPOSITION AND ANALYSIS OF SOAP.

By Dr. H. T. Vulte.

IN a broad sense the term soap includes the compounds of the higher fatty acids with alkali or other metallic bases, the former being soluble and the latter insoluble in water. It is to the first class, namely, the soda and potash compounds, that the term soap is particularly applied; the second class, not so well known to the general public, have still a considerable application, for example, lead soap, or plaster of pharmacy, alumina soap used as a lubricant, and iron and chromium soaps used in dyeing and printing.

### SOFT SOAPS.

There are two general classes of soaps, the potash or soft soaps, so called in virtue of their property of absorbing water and remaining in a semi-fluid or pasty condition and the soda or hard soaps which lose water and become quite hard or horny in character when exposed to the atmosphere. The potash soaps, though formerly much prized, have almost entirely gone out of use, the chief reason being their property of absorbing water, rendering them unsuited for keeping and transportation, and the greater cost of the alkali. Furthermore, though they are invaluable for certain purposes, as the scouring of raw wool and rough household use, the extreme difficulty of making a neutral compound makes them unsuited for use in the toilet and general cleansing of clothing or other objects, for which soap has so important an application.

With these brief remarks we may then dismiss the subject of soft soaps, since the methods of preparation are similar and the analysis exactly like that of the more important soda compounds.

### HARD SOAPS.

The fats usually employed in making hard soaps may be the neutral fats, *i.e.*, the glycerides, compounds of fatty acids with glycerine, or the fatty acids themselves.

The neutral fats most commonly used are stearin, palmitin, olein and laurin or cocoanut oil, and as fatty acid, oleic acid, the stearic and palmitic acids being chiefly used for the fabrication of candles. As a rule, better products can be obtained by using the neutral fats.

Thirty-one parts of soda ($Na_2O$), or one-half the molecular weight, require for combination the following quantities of the common fat acids:—

| | Parts. |
|---|---|
| Stearic acid | 284 |
| Oleic acid | 282 |
| Palmitic acid | 252 |
| Lauric acid | 200 |

One hundred parts of the following fats require the following amounts of alkali for complete saponification:—

| | Potash. | Soda. |
|---|---|---|
| Oleum | 15·95 | 10·52 |
| Palm oil | 16·67 | 11·00 |
| Tallow | 15·92 | 10·50 |
| Cocoanut oil | 18·86 | 12·44 |

Soda soaps may be classed as follows:

*Toilet soaps.*—Pure soaps, containing no rosin, free or carbonated alkali or silicate.

*Household soap.*—Containing rosin and free and carbonated alkali and silicate not to exceed one-half of one per cent.

*Manufacturer's soaps.*—Strongly alkaline soaps with or without rosin or silicate as the special case may require.

*Medicated soaps.*—Pure soap containing phenol, naphthol or other medicinal agent.

*Salt water soaps.*—Mixed soda and potash soaps of cocoanut oil which are soluble in both fresh and salt waters.

### PRINCIPLES OF PREPARATION.

Soaps may be prepared from oleic acid by direct combination with soda, preferably the carbonate, in the cold or slightly elevated temperature, but the best results are obtained when the glycerides are saponified with successive portions of rather dilute caustic soda, using the weakest solution first and boiling after each addition; when complete the soap is separated by adding a strong brine and rises to the surface, allowing the mass to cool, the soap is skimmed off and placed in frames; such a product is called curd soap. For household soaps containing rosin it is usual to add this substance gradually in the form of a fine powder during the process of saponification. Some makers prefer to saponify rosin and fats together, but the best method is to add the rosin to the soap in the form of a soda resinate.

There is much dispute as to the value of rosin in soaps of this character; soapmakers claim that it renders the soap more lasting and yields a fine lather on the other hand, if present in too large proportion it coats the skin with a thin film of rosin and renders fabrics yellow and sticky, in any event it should not exceed 25 per cent. of the total fatty acids present as soap.

A curious system in vogue among soapmakers should be noted. Rosin soaps are rated according to the proportion the rosin bears to the fatty

present; a soap of equal parts of rosin and fat is called 100 per rosin; one-quarter rosin, three-quarters fat, is 50 per cent. rosin; quarters rosin and one-quarter fat is 150 per cent. etc.

le if any curd soap is sold as such; additions of various sub-s, in the main deleterious, are made in the subsequent operation tching. This process consists in reducing the curd soap to a mass shreds, at the same time incorporating with it sal soda or silicate, h, and thoroughly mixing the mass. These agents increase the ent action, but the addition of such materials as clay, wood pulp, s, etc., is indefensible. All the above materials have the very cant name of fillers.

ure soda soap has the following composition:

| | Per cent. |
|---|---|
| Fatty acids | 62·3 |
| Water | 32·8 |
| Combined alkali | 6·7 |
| Salts | 0·2 |

oda rosin curd soap just from the pans analyses as follows:

| | |
|---|---|
| Fat and rosin acids | 65·0 |
| Soda | 6·5 |
| Water | 28·5 |

following are good examples of rosin soaps:

| | 1. | 2. | 3. |
|---|---|---|---|
| Fats and rosin | 70·0 | 60·43 | 61·0 |
| Water | 23·5 | 32·50 | 32·8 |
| Soda | 6·5 | 6·77 | 6·2 |

a rule the combined alkali is one-ninth of the fat existing as

ANALYSIS OF SOAP.

*ermination of water, etc.*—Cut from a bar of soap several one-inch cubes, place in a clean dry test tube, cork and weigh the . Then shake from the tube 2 or 3 cubes (5 to 10 grams.) into a um dish containing 25 or 30 grams. of clean, dry sand and a small rod, all of which have been previously weighed; now add 50 to . of absolute alcohol and heat on the water bath until the soap is ved, stirring at intervals. Evaporate the solution slowly to dry-mixing the contents of the dish thoroughly as the mass dries, then er to an air bath at 100° C. Remove from the air bath, cool and , repeat the operation to constant weight. The loss is water.

5 grams. of soap may be weighed in a platinum dish with a small rod, the dish and contents heated over a low flame with constant g; the temperature should not be allowed to rise high enough to the soap; a clean, cold glass plate held over the dish for a few nts will show by the presence or absence of moisture whether or e water has been driven off. This operation takes about twenty es, and is accurate to 0·25 per cent.

tead of using a platinum or porcelain dish a better way is to make a shallow lead dish 2½ or 3 inches in diameter; large bottle caps very well The same routine is passed through in determining : when this is done the dish and contents may be bent up and in the inner tube of an extraction apparatus, preferably the fler, and after filling the tared flask with petroleum ether the atus may be put together and run from one to two hours; at the f this time the apparatus is cooled, the lead dish removed and ed by a short test tube, the apparatus again closed and set in ion continuing until nearly all the petroleum ether has distilled he flask. The apparatus is again cooled, the tared flask removed id on a hot water bath on its side until all odour of petroleum has disappeared; it is then cooled and weighed; the increase ents unsaponified fat. The dish is again replaced in the ex-r and treated with 95 per cent. alcohol to remove the soap and ine; one and one-half to two hours time will effect this result. ish and contents are now removed from the extractor, placed in a m sized beaker and treated with hot water, finally filtering and ng until free from chlorides; the filtrate is diluted to 400 c.c, and .c. taken for the determination of $Na_2CO_3$, 100 c.c. for $Na_2SO_4$, .c. for NaCl, 100 c.c. for silicate. The residue insoluble in may be examined for mineral colours, insoluble soaps, clay, pulp, silica, &c.

alcoholic solution of the soap is now removed from the flask, g more alcohol, if necessary, and a few drops of phenolphthalen , and titrated for free alkali with N·10HCl.

B. It has frequently been observed that a soap may contain alkali and uncombined fat, an apparent anomaly, the , however, of careless manufacture.) The alcohol may now noved from the soap solution by diluting with $H_2O$ and passing gh it a current of steam. When this has been effected add an of normal HCl to decompose the soap; boil the resulting mass n to fifteen minutes, after adding a strong solution of NaCl or $O_4$ to render the fatty acids of cocoanut oil, etc., insoluble, chill tty acids, punch two holes through the cake and decant the solution through a filter, add some hot water to the fat acids in the beaker and more NaCl, if necessary, and wash, chill, filter as before; finally, break up the cake of fat acids, transfer to the filter, dry the beaker, rinse out with ether into a tared flask, introduce the filter paper and contents into an extraction apparatus and extract the fat and resin acids, drive off the ether, heat gently, cool and weigh. It is sometimes necessary to determine resin; in this case use the methods of Gladding or Twitchell.

The watery solution is now titrated with N-5KOH to determine the excess of acid used. When the neutral point has been reached, note the number of cubic centimetres used, add two or three drops of methyl orange and again titrate until neutral; this last result is the amount of soluble fatty acids and should be added to the other figures. Finally, calculate results and report as follows:—

Water.
Fatty and resin acids.
Combined alkali, $Na_2O$.
Free alkali, NaOH.
Alkali carb. $Na_2CO_3$.
Sodium silicate.
NaCl.
$Na_2SO_4$.
Mineral matter.
Fatty and resin anhydrides.
Actual soap.

*(To be continued.)*

## SULPHATE OF COPPER.

AMONG the principal sources of copper sulphate may be mentioned—

(1) The refining of the precious metals (gold and silver), which furnishes very considerable quantities;

(2) The natural liquors found in mines containing pyrites and those derived from the treatment of the residues of cupreous pyrites by the wet method;

(3) The direct preparation of copper sulphate by dissolving in dilute sulphuric acid, oxidized or carbonated minerals, crude copper, or waste copper after artificial oxidation.

The process of refining the precious metals by concentrated sulphuric acid is too well known to require description.

The natural liquor produced in the presence of certain mineral sulphides and those which result from the treatment of burnt cupreous pyrites, with sulphuric acid, or from the simple washing of these residues with water after prolonged exposure to the air, produce an impure sulphate of copper, mixed with more or less ferrous sulphate, by simple concentration and crystallization. This can be purified by heating the salt gently so as to convert the ferrous oxide into insoluble ferric oxide and dissolving it, or by precipitating the iron by powdered malachite (copper carbonate).

The mother liquors are afterwards precipitated by iron, for the crop obtained by a second crystillization would contain too much iron; the final liquors resulting from this operation are then worked up for sulphate of iron.

LINDING'S PROCESS.

At the copper works of Foldal (Norway) a very pure copper sulphate is obtained by the following method, which is described in L'Engrais:

The burnt residues of cupreous pyrites are extracted with water and precipitated with sulphuretted hydrogen. The copper sulphide formed is washed, filter pressed, dried, and converted into copper sulphate by a moderate roasting. The sulphuretted hydrogen is obtained by passing the gases from a Siemens regenerator along with water vapour through alternate layers of pyrites and fuel. After passing through a dust chamber, the gases reach a second chamber, in which they meet the copper solution, which is allowed to drip in a shower from the roof.

OTHER PROCESSES.

In another works the residues obtained by roasting cupreous pyrites are acted upon in a tower lined with lead by the sulphurous acid produced in the roasting mixed with air and steam. The solution of copper sulphate thus obtained has a strength of 30° Baume. Metallic residues of copper, old plates from ships, turnings and planings of copper must be oxidized before being submitted to the action of dilute sulphuric acid. This oxidation is effected in a reverberatory furnace in the presence of a current of air, but it only takes place very slowly and imperfectly unless the metal is either powdered or very finely divided; if it is not in this form it is necessary to submit the residue unattacked by the dilute acid to a second roasting, and sometimes even to repeat this operation a third time. The same treatment has to be adopted with crude copper which contains 70-80% of metal. Rich cupreous

residues containing 90% have been tried by some manufacturers, but they do not yield a sufficiently pure sulphate on account of the iron which is present in them At one works in Bordeaux an attempt was made to prepare the sulphate directly by the action of acid, after a preliminary oxidation, upon "corocoro," a mineral containing 75-90% of copper, which has been imported from America—and especially from Chili- for some years past in large quantities. The salt obtained in this way, however, has always proved to contain too great a quantity of iron sulphate ; this is derived from the gangue which accompanies the mineral, and which is a ferruginous sand, containing on the average more than 1% of iron, and moreover the price of the mineral is high.

Quite recently the metallurgy of copper has placed at the disposal of manufacturers of chemical products, almost chemically pure granulated copper, which is thus in a form eminently favourable for oxidation and for subsequent treatment with dilute acid.

The raw material for this product is the refined copper derived from the desulphurisation and freeing from iron of crude copper in a Bessemer converter, provided with a David's apparatus. The copper obtained has the average composition :

| | |
|---|---|
| Copper .. .. .. .. .. | 98·50 |
| Sulphur .. .. .. .. .. | 1·00 |
| Other substances .. .. .. .. | ·50 |
| | 100·00 |

and is quite free from iron. The impurities consist of traces of tin, silver and gold, metals which are all insoluble in dilute sulphuric acid. The granulation is effected very simply by inverting the converter over a vessel containing water, and breaking the thread of molten copper by means of an air blast ; the copper is finely divided and becomes cool in the water, after which it is dried and sieved. This method has the advantage of oxidising the copper on the surface, a result which is not obtained when the air is replaced by steam ; moreover, it produces hollow granules, however fine they may be.

The granulated copper obtained by this process is specially suitable for the preparation of salts and the sulphate in particular, for it does not conglomerate in the vats and produces a blue vitriol of exceptional purity.

The action of the acid upon the oxidised copper takes place as in the manufacture of sulphate of iron, in conical wooden vats lined with lead. The rods or granules of copper are placed in a small copper vessel pierced with two holes and submerged in the acid. Chamber acid let down to 29-30° Baume with mother liquor is employed, and is heated to 80-85° by steam pipes The heating may also be effected by blowing steam directly into the liquid, and a current of air is found to aid the solution, especially when the copper has not been completely oxidised.

When the material employed is very pure a good product can be obtained directly from the liquors drawn from the solution vat and clarified by standing in the settling tanks. In this case the strength of the solution should not exceed 30-31° B. at 85° C., or small, indefinite crystals are produced.

The sulphate obtained by the first crystallization is usually purified by re-dissolving it in water, and again allowing to crystallize. When this is done the strength of the liquor in the solution tank may be raised to 40-41° B.

The crystallization is carried out in lead-lined wooden tanks, in which strips of copper are suspended, and the crystals form on the bottom and sides of the tanks and in groups on the metallic strips. The process lasts 8-12 days, and the result is more satisfactory, the lower the strength of the liquor has been, the more complete the neutrality, and the slower the rate of cooling.

In order, therefore, to obtain a good product, it is necessary to employ crystallizing vats of large capacity (3-4 cubic metres). The crystals are drained by a centrifugal machine, and are then dried, the temperature not being allowed to rise above 25°.

The first mother liquors serve to dilute the chamber acid employed for solution. The impurities of the copper gradually accumulate (iron, nickel, cobalt, manganese, etc.) in these liquors, and it becomes necessary to eliminate them. This is done by concentrating to 45° B. in leaden boilers heated by steam, the salt which crystallizes is purified by a fresh crystallization, and the last mother liquors are precipitated by metallic iron and the copper thus regained.

The sulphate of copper snow, prepared specially for vine cultivation, is obtained in the same manner as the finely divided sulphate of iron. (*Vide C. T. J.*, No. 282, p. 241).

100 kilos. of granulated copper furnish in practice 375-380 kilos. of crystallized sulphate, $CuSO_4$, 5 aq. When the copper used is very fine the yield may rise to 385 kilos. About 240 kilos. of sulphuric acid of 50° B. are employed for 100 kilos. of copper. The purified sulphate generally contains 98-99% of $CuSO_4$, 5 aq.

The precious metals (gold and silver), of which perceptible traces occur in all commercial copper, accumulate in the muddy deposits formed in the various vats. These deposits sometimes contain the extent of 2%, so that its extraction becomes profitable. de Beechi and Gall have recently patented a process for the ma ture of sulphate of copper, which consists in directing a curr sulphurous acid, compressed air and steam on scrap copper co in a tower and heated to 100°. A stream of mother liquor is to flow down the tower, and becomes saturated by dissolvi sulphate formed by the action of the sulphurous acid, etc. On the tower it is run over wooden tables covered with lead ; the cooling produced by the large surface causes the deposition of a line magma, which is re-dissolved in hot water and again allo crystallize. In this way a sulphate of 98-99% is obtained.

This process is not new, however, and has been the subje previous patent in 1877 by T. H. Dennis, of Liverpool.

## THE QUALITY OF LEEDS GAS.

The following is taken from the report of Mr. T. Fairley, examiner for Leeds, who states that during the month ended 13th, 1892, the proportion of total sulphur contained in the Le has averaged 14·20 grains per 100 cubic feet. The following results of tests made at the works in grains per 100 cubic feet :—

| Place. | Date when Tests were made. | | Total Sulphur. | Ammonia. | Carbonic |
|---|---|---|---|---|---|
| | Oct., 1892. | Nov., 1892. | | | Weight. |
| Meadow Lane.... | 20. 29. | 3. 9. | 12·49 | 0·35 | 40·73 |
| New Wortley .... | 18. 29. | 2. 8. | 14·53 | 5·63 | 57·05 |
| York Street ..... | 19. 27. | 4. 10. | 17·14 | 1·36 | 48·90 |
| Average at Works | .. | .. | 14·20 | 3·20 | 48·90 |
| Average at East Parade ..... | .. | .. | 16·22 | 4·85 | 57·05 |

During the month the average illuminating power of the Lee tested at 15, East Parade, the tests being calculated to a unifo sumption of 5 feet per hour, and corrected for variations in tem and pressure, to a temperature of 60° Fahr. and a barometric of 30 inches, has been in standard candles (burning 120 g sperm per hour) :—Standard argand, 24-hole, 18·7; standard b 19·6 ; Sugg's illuminating power meter, 18·6.

## AMMMONIUM SULPHATE AS A FERTILI

THE question of the real fertilizing value of sulphate of amm recently been made the subject of special investigation German Agricultural Society. In making his report, Dr. Wag the two points which he was directed to investigate were the follo Is ammonium sulphate a thoroughly reliable fertilizer—a fert which the farmer can place complete confidence? and then th question : In what relation of value does ammonium sulphate sodium nitrate, the so-called Chili saltpetre, which at present market ?

He has paid considerable attention to the effect of nit manures upon cultivated plants, and during the last four y made, along with his assistants, several thousand experiments manuring of plants, with nitrates and ammonium compound results of these have recently been published in a detailed w for the present we shall confine ourselves to the following only :—Can the action of the ammonium salt be relied up cases? Can the farmer apply it in all kinds of soils and to all plants with the same certainty of result as Chili saltpetre ?

These questions have hitherto been answered with a decided

### THE PREVAILING OBJECTIONS TO ITS USE.

It is to Marcker that we owe numerous field experiments relative actions of ammonium salts and nitrate, and these exp have shown how irregular the action of the ammonia is. At it would show an action that was not less than that of a corre amount of nitrate; whilst at another it would be so small that, in the case of certain crops, such, for example, as beets and po was believed that the application of ammonium sulphate must given up. The causes of these great irregularities in the actio ammonium salt were, however, not known. It was sugg possible—and some experiments seemed to confirm this view— ammonia nitrogen could, under certain circumstances, have a de effect, or that the sulphuric acid combined with the ammoni under some conditions, be injurious.

as believed that certain plants showed particular sensitiveness s ammonium salts, and it was also held possible that in some e necessary change of the nitrogen of the ammonia into the form c acid proceeded too slowly. In short all kinds of theories were ed to account for these remarkable variations in the action of the ium salt.

ill be readily conceived that under these circumstances farmers l but little inclination to employ sulphate of ammonium; nitrate nore certainly, could be used for all plants and could not only be l at sowing time but also as a top dressing in April, May or June, ing to desire; moreover, the price of nitrogen as nitrate was not than that in the form of ammonia. In addition to these in- s we must remember that many accounts of failures with ium sulphate, and sometimes on a very large scale, were ied from time to time.

Waddington's researches, carried on for a number of years, had for example, that the action of nitrogen as ammonia only ted with peas to 69%, with potatoes to 47%, and with hay grass 31% of that of nitrate. Dr. Bassler had, moreover, obtained an ed yield of only 37 kilos of potatoes by the use of ammonium e, whilst with a corresponding amount of nitrate the increase ted to 1,500 kilos. Dr. Samek published experiments with beets in which the action of the ammonia nitrogen was shown to 16% of that of the nitrate.

clear that under such conditions sulphate of ammonia must come nd more into discredit, and Dr. Wagner himself was the first to he attention of the farmer to the great uncertainty of the action phate of ammonia, and to the small extent of our knowledge in ters relating to the action of ammonia. He felt that he owed the farmers. Although this behaviour on his part gained for me reproaches both in Germany and other countries, yet, under ne circumstances, he says he should again act in precisely the nanner.

the distinct duty of all investigators to expose all gaps in our edge, just as much as it is his duties to fill up those gaps. If Dr. r has been to some pains to perform the first portion of these he has been at no less trouble to carry out the second to the his ability.

THE OBJECTIONS ANSWERED.

some years ago, it was said that the ammonium salt was not in action, to-day in the light of investigations carried on in the ning period, it can be shown that ammonium sulphate can be red for fertilizing purposes with the same degree of certainty as alpetre, by explaining the causes to which the unfavourable of ammonia-fertilising has been due, and by stating the con- under which the effect of the nitrogen of ammonia reaches its point, and acts with no less certainty than the nitrogen of altpetre.

main conclusions drawn by Dr. Wagner from the whole of his re summed up in the following paragraphs:—

He has never been able to obtain a deleterious action of the ia even with exceptionally high amounts.

he sulphuric acid of the ammonium sulphate has no evil effect on etation in the quantities usually employed for fertilizing.

l effects due to the use of solutions, which are too concentrated, duced more easily with solutions of nitrates than with those of ium salts.

he effect of ammoniacal nitrogen is considerably less than that of if the soil is deficient in carbonate of lime. On unlimed land ion of the ammonia only amounted to 28 per cent. of that of ; whilst on limed land, the other conditions being the same, the was 90 per cent. of that of nitrate.

similar state of things occurs when the soil is lacking in potash The soda of the Chili saltpetre is able in such cases to replace king potash to some extent. An addition of common salt, or salt, containing soda increases the effect of the ammonium unds in such circumstances.

When all the necessary conditions for the proper action of the ium salts are fulfilled, the action of these amounts in round rs to about 90 per cent. of that of a corresponding quantity of the

he action of the ammoniacal nitrogen exceeds that of nitrate continued rains and a very porous soil have allowed the nitrate to ate too far into the soil.

he action of the ammoniacal nitrogen also exceeds that of the when the soil has been rendered by the repeated additions of so rich in soda that a further addition of the latter, which is ied in the nitrate, is injurious.

he fertilising value of the ammoniacal nitrogen may be said to he average in practice equal to that of the nitrate, provided that monium salt is applied in a rational manner, all the conditions case being properly considered.

e results justify the statement that ammonium sulphate now s to those fertilisers which, when properly employed, can be relied upon to produce a proper effect, and in which the farmer can thoroughly trust. We are now in the position to say definitely to the farmer under what conditions the sulphate will have the maximum of action, what precautions must be adopted to ensure its efficacy, and under what circumstances Chili saltpetre should be preferred to ammonia, and *vice versa*. We have thus gained much, and what remains to be done is not difficult. We have now, to make these experiments useful in practice, to make them known as widely as possible, to remove the present erroneous ideas, to confirm the trustworthiness of the ammonium salt, and in every way to spread clear and accurate information upon this question.

## RECTIFYING PETROLEUM.

A NEW process has been brought out recently by Messrs. Verschave and Barron for the rectification of petroleum, which practically depends upon the action of the following mixture.

| | | |
|---|---|---|
| Water | 10 | parts. |
| Liquid ammonia | 30 | ,, |
| Nitric acid of about 40°B | 60 | ,, |
| | 100 | |

This mixture after being allowed to cool is placed in a lead lined vessel in which previously about 5 lbs of finely ground stone, preferably that obtained from Lorraine have been placed. Into this about 100 litres of distilled petroleum are turned and the whole agitated It is then allowed to settle for eight to ten hours, the time depending upon the quality of the petroleum. The clear petroleum is then siphoned off leaving the residue resulting from the treatment with the acid liquid at the bottom. The purification in this process depends upon the joint action of the acid mixture and the decomposition of the stone by the same. The treatment in addition to removing impurities, removes to a large extent the characteristic odour of petroleum, while it is claimed to diminish its inflammability and increase its lighting power. The treated product is more limpid than ordinary oil and possesses a faint yellow colour.

## VIOLET SOAP BY THE COLD PROCESS.

A WRITER in *Der Seifenfabrikant* remarks that nearly all formulas for this soap agree that cocoanut oil and some tallow should be used and that powdered orris root and the well-known characteristic perfumes, as well as tincture of musk, are to be employed. In almost everything else the formulas differ.

One recommends that about 10 per cent. crude palm oil is used, another wants olive oil, and still others castor oil, and—to produce the well-known colour of this soap—sugar colouring or some other brown colour. Apart from the fact that the most worthless soaps in the market may often go by the name of violet soap, there are also some otherwise well-made brands which have one particular fault in common with even the worst make, viz.: the colouring matter used produces stains.

Crude palm oil would not be a bad addition to the stock in such soaps, if it could be used as generally prescribed, viz.: "fresh." But really fresh palm oil can rarely, if ever, be had; it is rancid on arrival. Even if it is in a passable condition, 10 per cent. would be too much, as it would cause almost indelible stains. From 3 to 5 per cent. would be all right.

While a cold made violet soap cannot be compared with a well-made milled one, it is nevertheless well liked by many consumers The problem then is how to make such a one without the addition of objectionable colouring matter. Olive oil in the stock is recommended by the writer mentioned, as well as castor oil, which has the property of fixing the colours, and helps to preserve the colour of crude palm oil. A small percentage of potash lye is recommended, and powdered orris root, powdered orange peel, liquid storax, and balsam of Peru will probably be of themselves sufficient to produce the necessary colour. If not, from 3 to 4 per cent. of crude palm oil may be used in the stock, and a little vermilion (rubbed in oil) will do no harm.

A formula of this kind, which will give a very satisfactory result if carefully handled, is as follows:—

50 lbs. tallow (or 40 lbs. tallow and 10 lbs. olive oil).
40 lbs. cocoa-nut oil.
15 lbs. castor oil.
44 lbs. soda lye 38° B.
6 lbs. potash lye 30° B.
14 lbs. orris root, powdered.
2 lbs. orange peel, powdered.
2 lbs. liquid storax.

The powdered orris root and orange peel are mixed with the oils and left therein for 10 or 12 hours, when the melted fats are also added.

Next the storax is strained in through a cloth (and the vermilion, if wanted, is added). When everything is well mixed, and at a temperature of 100 to 110° F., the lye is crutched in. When the soap is nearly ready for framing, it is perfumed with the following mixture :—

| | |
|---|---|
| Oil of bergamot | 350 parts |
| Oil of lavender | 150 parts |
| Oil of sassafras | 20 parts |
| Balsam of Peru | 100 parts |
| Musk (Tonquin) | 3 parts |

The finished and hardened soap should remain well covered for at least a week before cutting it up. Soap cut too soon becomes covered by a white bloom, resembling the result of the ordinary efflorescence.

## NOTICES.

### LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of

THE CHEMICAL TRADE JOURNAL

From

MR. JOHN HEYWOOD,
2, Amen Corner,
Paternoster Row, E.C.,

On usual trade terms.

### FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed* Money Order is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country

## Correspondence.

*** *We do not hold ourselves responsible for the opinions expressed by our correspondents.*

### *ANSWERS TO CORRESPONDENTS.*

F. T. (Berlin).—It is safely to hand, and we are obliged for your promptitude.
P. S. and Co.—We have not yet received your letter.
H. P.—The matter has been taken in hand.
W. B.—Some time this week, we hope, but we will let you know.
M. K. and M.—It will be ready to send away in a few days.
J. B. F.—It is often used, Chinese white is more effective.
R. H. C.—It would cost about six shillings, we should think. They do not wear so well as when prepared by the usual process.
R. P. Co.—The matter is safely to hand, for which we thank you.

## Trade Notes.

Salt at Ontario.—The borings for salt which have been carried on at Windsor, Ontario, by the Pacific Railway Company have proved successful, a bed of rock-salt at least 30 ft. thick having been reached. The company intend to erect a large salt manufacturing plant.

Society of Chemical Industry: *Liverpool Section.*—The next meeting of this section will be held on Wednesday, December 7th, at the University College, when a paper will be read by Mr. H. L. Terry, F.I.C., on "Critical notes on the Chemical Technology of India-rubber." Tea will be served at 7.0-7.30 p.m.

Society of Chemical Industry: *Scottish Section.*—A meeting of this section will be held on Tuesday, Dec. 6th, at 8 p.m. in the Philosophical Institution, Edinburgh, when a discussion will be held on Mr. D. R. Steuart's paper, entitled :—"Flash point and Heat of Burning of Mineral Oil," which was read at the last meeting of the section.

Society of Chemical Industry: *Yorkshire Section.*—On Monday, Dec. 5th, a meeting of this section will be held at the Yorkshire College, Leeds, when Prof. Hummel will deliver an addr "Some Primitive modes of Dyeing," illustrated with appar drawings. An exhibition of some new chemical apparatus wil given.

Society of Chemical Industry: *London Section.*— meeting of this Society will be held in the rooms of the Society, on Monday, Dec. 5th, at 8 p.m. The following p be read :—"New Form of Filter press for Laboratory Use," b C. Hutchinson; and Messrs. Cross and Bevan will read two p (1) "The production of acetic acid from carbohydrates;" (2) lytic soda and chlorine: The present aspects of the question."

**Obituary.**—We regret to record the death of Mr. John Gel man for Messrs. Adley, Tolkien and Co., chemical manu Blackburn. The deceased gentleman, with his assistant, w menting with chemicals used in the manufacture of chlorid when he became overpowered with the fumes, and, despit assistance, died on Monday night last.

Messrs. Dan Rylands Ltd.—The report of Dan Rylan shows that the Company has experienced a fairly prosperous ye meeting interest charges and providing for the redemption of de the Directors are able to recommend that a dividend of 10 pe paid on the ordinary shares and that £733. be carried forw new account. According to the directors' report, it appears is to a considerable extent superseding tin in the preserved m and fruit trades.

Citric and Tartaric Acid Tests.—We learn that th Committee which was appointed some time ago by the Chemi Section of the London Chamber of Commerce to consi result of the Woolwich Citric and Tartaric Acid case, the d of a recognised method of testing whether the acids are or a to the B.P. standard, have now agreed to recommend to the and for general adoption throughout the trade, the followin Take tartaric acid (or citric acid), 10 grammes, water 20 c.c. the acid in the water, and add to same sufficient freshly sulphuretted hydrogen water, so that the whole may measure

A New Salt Making Process at Winsford.—Mess and Kitchen, trading as the Winsford White Salt and Brine have commenced making salt at their works in Hill-street. of two fires in place of four and the introduction of hot air mechanical appliances, Mr. Blagg claims to have overc difficulty and annoyance of black smoke. Work has been c for ten days, and the new process is said to have given every sa The Government inspector and Mr. T. Ward, J.P. (direct Salt Union), and many others, have made an inspection of the The Inspector expressed himself highly pleased with what he and at his request, Mr. Blagg supplied him with a plan to before Mr. Fletcher (the chief inspector under the Alkali thorough test of the new scheme was made, the Inspector t process of firing and rangering, and taking observations of th of smoke emitted at those times.

## Market Reports.

### TAR AND AMMONIA PRODUCTS.

The tar products market remains in the same position as q week. Benzol is unchanged, while anthracene cannot be quo and the future is simply a matter of finance.

The sulphate of ammonia market keeps very steady in sp manœuvres of dealers and their magnified account of stag business. The demand has not been quite so strong this this is only because immediate requirements are satisfied, an sufficient evidence that consumers will have to come in agai ember. They are only waiting for favourable opportunities. Liverpool is firm at £10. 2s. 6d. or even £10. 3s. 9d. Leit has been reported at £10. 1s. 3d., while both Beckton and outside makes may be quoted as £10. 2s. 6d.

### THE METAL MARKETS.

LONDON, Wednesday.—Pig iron dull. Scotch warra at 41s. 7d. cash. Middlesbrough 37s. cash, and Hematite cash. Copper easier: Chili bars, G.O.B.'s and G.M.B.'s £47. 17s. 6d. cash, and £48. 6s. 3d. to £48. 7s. 6d., three Tin easier but steady. Straits closed at £93. to £93. 10s. c

£93. to £93. 10s. three months. Australian, £93. 10s. cash. English ingots, £97. Lead firmer: Spanish, £10. 1s. 3d. to £10. 2s. 6d. English, £10. 5s. to £10. 7s. 6d. Silesian spelter: Ordinary, £18. 17s. 6d. Quicksilver: First hands, £6. 10s., second hands, £6. 8s. 6d. *Copper shares* dull; Cape, $1\frac{11}{16}$ to $1\frac{13}{16}$; Copiapo, $2\frac{7}{16}$ to $2\frac{9}{16}$; Libiola, 3½ to 3⅜; Mason and Barry, 3¼ to 3⅜; Rio Tinto, $16\frac{13}{16}$ to $16\frac{15}{16}$; Tharsis, 4¾ to 4⅞; Namaqua, $\frac{13}{16}$ to $\frac{15}{16}$; Panulcillo, ⅜ to ½.

WOLVERHAMPTON, WEDNESDAY.—Blast furnaces and mills and forges rather busier completing deliveries before the holidays. Inquiries are received for next year's supplies, and some pig iron contracts have been secured already at fairly good prices for delivery to the end of March. Steel fairly active. Steel angles, £5. 15s.; bars, £6.; blooms, £4. 10s. to £5.; marked iron bars, £8.; galvanised corrugated sheets, £11. 10s. to £12. for 24 gauge. Northampton pigs, 45s.; Derbyshires, 45s.

## LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—In palm oil there has been a sparing supply, and increased figures have been paid for prompt delivery. Sales of Lagos have been made at £24. 15s., and Accra £22. 15s. per ton. Olive is very quiet and values are unaltered, the business done being virtually nil. Linseed continues easier, prices being 19s. 3d. to 19s. 6d. per cwt. in export casks. There is a slight enquiry for Liverpool makes. Cottonseed: As recently anticipated there has been an advance in prices to 18s. 6d. for Liverpool refined, while there is a moderate enquiry. Castor oil: Good seconds Calcutta continues at $2\frac{5}{16}$d. per lb. and is rather dull. First pressure French is firm and in fair request at $2\frac{11}{16}$d. Tallow continues firm with a somewhat better demand at last week's figures. Resin, common, has declined to 4s. 3d. and 3s. 10½d. per cwt. is now quoted for arrivals. Spirits of turpentine are in moderate demand at 23s. per cwt. Petroleum is in good demand. Prices unaltered.

COLOURS are quiet. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s., medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20.

## REPORT ON MANURE MATERIAL.

There has been very little activity in the market, and in the main prices rather favour buyers.

Florida, 75/80%, phosphate rock offers at 8d. per unit in cargoes c.i.f. to United Kingdom, prompt and forward shipment, and there are sellers c.i.f. continent at 8¼d. The value of Peace River rock is about 6½d. per unit, and hot-air-dried Coosaw River rock may be had at 6¼d. c.i.f. United Kingdom or good continental port. In the face of above quotations there is very little inducement to United Kingdom buyers to use continental descriptions of phosphate, even at the prices current, and there is very little business doing in them. The nearest value of cargoes River Plate bone ash is £3. on 70% nett Hamburg terms.

Several cargoes of River Plate bones changed hands at £4. 2s. 6d. for United Kingdom, and at the equivalent of £4. 2s. 6d. for United States. Sales of crushed Kurrachee bones have been made at £4. ex quay Liverpool, on spot and to arrive, and £4. is closing value. Buyers have not followed the advance demanded for Bombay bone meal, and there would now be sellers at £4. 2s. 6d. ex quay, Thames, Mersey or Clyde. Spot value is £4. 2s. 6d. to £4. 10s., according to quality.

Nitrate of soda is quieter in all positions, though the figures cabled from West Coast continue to confirm the small shipment previously estimated. On spot the quotations are 8s. 10½d. for lowest, 9s. for good quality, and 9s. 1½d. for fine. Due cargoes are worth 9s. 1d. to 9s. 2¼d., according to size and test. September shipments about 9s. 3d., and October-Novembers about 9s. 4½d., ordinary West Coast test, but during the past ten days there has been very little to test the market.

Further sales of River Plate dried blood have been made at 8s. ex quay, Birkenhead. Home prepared offers at 8s. 6d. to 8s. 9d. per unit, according to position of works, free rails, single bags, gross weights, and at 9s. 3d. in double bags, gross weights, f.o.b. Liverpool. Sales of Rio Grande meat manure have been made at 8s. per unit of ammonia, and 10d. phosphates, ex ship at Birkenhead.

## MISCELLANEOUS CHEMICAL MARKET.

Business in the alkali trade continues active in all departments both for spot and forward delivery. Bleaching powder is without change in price, £7. 10s. being the quotation f.o.r. for spot delivery, and £7. 5s. for contracts over 1893. For all grades Leblanc soda ash, the works are well engaged, and prices are steady at 1⅜d. per degree f.o.b., for ordinary, and 1⅝d. for refined. In ammonia soda ash, 58%, the nearest value to-day is 1¼d. per degree f.o.b. Caustic soda without change. Current quotations are: F.o.b. Tyne, 77%, £11. 15s.; f.o.b. Liverpool, 74%, £11. 5s.; 70%, £10. 5s.; 60%, £9. 2s. 6d.; cream, 60%, £8. 17s. 6d., 10 ton lots and upwards. Soda crystals and bicarbonate are without change in value. Chlorate of potash, 8½d. to 8¾d. for early delivery, and 7d. for all 1893. Chlorate of soda still scarce at 9½d. Sulphate of copper has rather improved in value, and there is more enquiry. Present quotation £15. 15s. to £16. per ton. Recovered sulphur quiet at £4. 10s. f.o.r. makers works. Vitriol and muriatic acids are in good request, and without change in value. Brown acetate of lime rather firmer at £6. to £6. 5s. for early delivery, and £6. 10s. forward. Grey acetate of lime £10. 15s. to £11. per ton. Acetate of soda £18. to £18. 5s. per ton c.i f. White sugar of lead slow of sale, but price is without change. Brown, £16. to £16. 10s. c.i.f. Demand continues good for potash, caustic and carbonate, and there is no material change in values. Yellow prussiate of potash 9¾d. to 10d. Sulphocyanides quiet, and prices remain at a low point. There is, generally, a low range of values over all chemicals used in the textile trades, and there is no report of improvement in demand from any quarter.

## TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals generally are dull, but bleaching powder seems slightly better in position, price quoted by makers being £7. 10s. per ton nett. Caustic soda and sulphur unaltered.

Bleaching powder, softs, £7. 10s. per ton nett; hards, £7. 15s. per ton; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £5. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £4. per ton, 140° Tw., £4. 7s. 6d. per ton; soda crystals, in casks, £2. 15s. per ton gross weight, in 2 cwt. bags, £2. 15s. per ton nett weight; chlorate of potash, firm at 9d. per lb. less 6%; pearl hardening, £3. 10s. per ton nett; pure white sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta crystals, £19. per ton net; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; hydrate of barium, £11. per ton.

South Durham salt is steady at 10s. 1d. per ton f o.b. Tees.

Coals: Trade is quiet. Best Northumbrian steam 9s. to 9s. 3d. per ton. Small steam 3s. 9d. to 4s. per ton. Bunker coals flat, and low prices are quoted. Gas coal in large demand, though price is weaker. Manufacturing coals are easier, and contracts for 1893 are being closed at reduced prices.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

There seems to be rather a firmer feeling in bleaching powder, although quotations are not appreciably affected as yet, and the article is certainly scarcer than it was. Sulphate of copper continues on the rise, being at present quoted £16., Liverpool, less the usual discount. Caustic soda and soda crystals are fractionally weaker, and slow of movement in spite of special inducement said to be on offer by makers to the continental market.

Continental advices in regard to sulphate of ammonia have had rather a lowering tendency, and the market has lost slightly in consequence. For prompt Leith to-day the top estimate is not above £10. 2s. 6d., and it is doubtful if so much is readily procurable.

Paraffins and mineral oils continue in active movement, but prices all round remain poorly remunerative. Burning oils are in full delivery, but lubricating oils are naturally somewhat affected by the general trade depression and the cotton spinning dislocation. Prices, however, have not been further broken.

Bichromates, at the agreement prices as given below, are still quiet of demand.

Chief prices current are:—Soda crystals, £2. 15s. nett Tyne; alum in lump, £5. 10s., nett Glasgow; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; bleaching powder, £7. 5s. nett Tyne; saltcake, 32s. 6d.; borax, English refined, £30., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8½d., less 5% Liverpool; nitrate of soda, 9s.; sulphate of ammonia, £10. 2s. 6d. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16. less 5% Liverpool; paraffin scale (hard), 2d., and soft 2d. per lb.; paraffin wax, 120°, semi-refined, 2½d.; paraffin spirit (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower); ditto (lubricating), 865°, £3. 5s. to £3. 10s., 885°, £4. 5s. to £5. 15s, and 890/895°, £5 to £6. 10s. Week's imports of raw sugar at Greenock were 24,809 bags.

# New Companies.

**David and Sant, Limited.**—Capital £50,000. in £10. shares. The object of this company is to trade as quarriers of stone and marble, and manufacturers of concrete and dealers in sand, lime and cement. The subscribers to the memorandum of association are:—W. David, Coleford, Gloucester, stone merchant; S. A. Sant, Coleford, Gloucester, stone merchant; A. E. Andrews, Coleford, law clerk; W. Bryant, Coleford, clerk; E. Gardiner, Coleford, quarry foreman; W. Hawkins, Coleford, saw mills foreman.

**Robert Poole and Co., Limited**—Capital £3,000. in £5. shares. This company has been formed to acquire and carry on the business of oil, colour, drug and glass merchants, lately carried on by Messrs. R. Poole and Co., at Waterford. The subscribers to the memorandum of association are:—M. E. Poole, Summerhill, Waterford, widow; W. Poole, Newtown-road, Waterford, engineer; P. Murphy, 5, Michael-street, Waterford, grocer; M. F. Hornick, Johnshill-house, Fethard, Co. Wexford, spinster: W. Chapman 61, Quay, Waterford, merchant; S. Chapman, Belle Vue-terrace, Waterford, married woman; W. Hornick, Johnshill-house, Fethard, Co. Wexford, farmer.

**Johnson and Darlings, Limited.**—Capital £30.000. in 160 preference shares of £50. and 440 ordinary shares of £50. The company has been formed to take over and carry on the business of brewers, manure and chemical manufacturers, hitherto carried on under the style of Johnson and Co., Berwick-on-Tweed. The subscribers to the memorandum of association are:—T. Johnson, Berwick-upon-Tweed, colliery proprietor; A. Darling, Berwick-upon-Tweed, merchant; T. Darling, Berwick-upon-Tweed, merchant; A. Darling, Berwick-upon-Tweed, agent; A. Darling, jun., Berwick-upon-Tweed, book-keeper; G. D. Carr, Chillingham New Town, Northumberland, farmer; G. Armstrong, Amen-corner, Newcastle-upon-Tyne, solicitor.

**J. M. Leigh and Co., Limited.**—Capital £6,000 in £1. shares. The object of this company is to buy and deal in minerals, ores, etc., and also to carry on the business of melters and refiners of metals. The subscribers to the memorandum of association are:—C. L[illegible] 15, George-street, E.C., mining engineer; J. A. Lloyd, [illegible] Cheapside, E.C., accountant; F. W. Couzens, 45, Fe[illegible] E.C., merchant's clerk; C. G. Arthy, Forest Gate, me[illegible]; W. Alfred, 84, Caversham-road, N.W.; J. Holbrow, [illegible]eckham, t[illegible] maker; W. T. Parrack, 171, Queen Victoria-street, inspe[illegible] engineer.

# The Patent List.

*This list is compiled from Official sources in the Manchester Te[illegible] Laboratory, under the immediate supervision of George E. Dav[illegible] Alfred R. Davis, who report professionally upon the value of Ch[illegible] Patents.*

## APPLICATIONS FOR LETTERS PATENT.

**Manufacturing Paints and Pigments from Waste Oxide of Iro[illegible]** Harris and H. C. Sacré. 20,547. Nov. 14th.

**Improvements in Dyeing.** C. S. Bedford. 20,553. Nov. 14th.

**Sterilizing Water.** D. Grove 20,568. Nov. 14th.

**Evaporating and Concentrating Apparatus.** F. W. Scott, E. G. S[illegible] W. Scott, jun. 20,595. Nov. 14th.

**Thermometers.** A. E. Dean. 20,625. Nov. 15th.

**Improvements in the Extraction of Tanning and Dyeing Material[illegible]** Heftler and G. Benard 20,677. Nov. 15th.

**Perculators for Extracting Oil.** R. Haddan. 20,682. Nov. 15th.

**Manufacture of Coal Gas.** T. F. Ennis and G. F. M. Ennis. 20,783. No[illegible]

**Curburetting Gas or Air.** J. Love. 20,860. Nov. 17th.

**Apparatus for the Manufacture of Gas.** V. B. Lewis. 20,869. Nov. [illegible]

**Explosives and other Compounds containing Dissolved N[illegible] Cellulose.** A. H. Durnford. 20,880. Nov. 17th.

**Manufacture of White Lead and Coloured Pigments.** R. Matthe[illegible] J. Noad. 20,891. Nov. 17th.

**Manufacturing Spongy Lead for Secondary Batteries.** E. Bailey a[illegible] Massey. 20,900. Nov. 17th.

**Rectifying Spirits, Oils and Essences.** R. H. Leaker. 20,903. Nov. [illegible]

**Manufacturing Sulphide of Sodium or Potassium from their Sulp[illegible]** F. H. Gossage and J. Williamson. 20,921. Nov. 18th.

**Improvements in Mechanical Stokers.** J. E. L. Tatham. 21,007. No[illegible]

**Apparatus for Producing Illuminating Gas.** J. D. Hall. 21,008. No[illegible]

**Fixing Mordants on Fibre for Dyeing.** C. D. Abel. 21,049. Nov. 19[illegible]

**Manufacture of Explosives.** A. McDougall. 21,058. Nov. 19th.

# Gazette Notices.

## PARTNERSHIPS DISSOLVED.

W. Dicketts, Junr., and J. Petrie, Junr., under the style of Dicketts, [illegible] and Co., Mincing-lane, City, chemical merchants.

E. C. Prentice, M. Prentice, and H. B. Evans, under the style of P[illegible] Bros., Stowmarket, manufacturing chemists, and manufacturers of chemi[illegible] other manures.

## BANKRUPTCY ACTS, 1883 and 1890.

### Receiving Order.

Stead, John, Bradford, wholesale grocer and drysalter.

### Adjudication.

Stead, John, Bradford, wholesale grocer and drysalter.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending November 19th.*

**Acetic Acid—**
Holland, 100 pkgs. Beresford & Co.
" 68 A. & M. Zimmermann

**Acetone—**
Holland, 5 pkgs. A. & M. Zimmermann

**Alkali—**
France, 565 c. Arnati & Harrison

**Alum—**
Holland, 108 pkgs. Ohlenschlager Bros.

**Ammonium Acetate—**
Holland, 1 pkge. J. Owen

**Ammonium Nitrate—**
Germany, 2 pkgs. Petri Bros.

**Antimony—**
France, 1 t. Mory & Co.
Portugal, 50 J Bamber
France, 3 Macqueen Bros.

**Asbestos—**
France, £33 Prop. Chambln.'s Wf.

**Barium Chloride—**
Germany, 23 pkgs. Petri Bros.

**Barytes—**
Germany, 22 cks. W. Harrison & Son
" 2 cs. J. Knill & Co.
France, 39 J. B. Orr & Co.
Holland, 92 Magee, Taylor, & Co.

**Boracic Acid—**
Germany, 22 pkgs. L. & I. D. Jt. Co.

**Borax—**
Germany, 3 pkgs. L. & I. D. Jt. Co.

**Bromide of Iron—**
Germany, 6 pkgs. A. & M. Zimmermann

**Caoutchouc—**
Inhambane, 94 c. L. & I. D.
Mozambique, 15 "
Zanzibar, 97 Clarke [illegible]
E. Indies, 5 J. H. & G[illegible]
U. States, 7 J. Walk[illegible]
Madagascar, 30 Langsta[illegible]
Zanzibar, 326 L. & I. D.
Portugal, 10 Elk[illegible]
" 11 Lewi[illegible]
" 22 S. Figg[illegible]
" 8 Prop.
" 30 Wall[illegible]
Zanzibar, 55 Forbes, Forbe[illegible]
Portugal, 43 L. & I. D
Rangoon, 80 "
Mombasa, 11 Lew[illegible]

**Oil—**
6 cks. L. & I. D. Jt. Co.
10 brls. Beresford & Co.
, 10 cs. Fuerst Bros.
s, 50 Anderson, Weber, & Smith
50 J. Greig

**ls** (*otherwise undescribed.*)
y, £9 C. Atkins & Nisbet
9 Phillipps & Graves
35 pkgs. A. & M. Zimmermann
30 T. H. Lee
12 W. Burton & Sons
12 M. D. Co.

**f Tartar—**
6 pkgs. E. W. Carling & Co.
2 cks. Smith, Abbott, & Co.
5 W. C. Bacon & Co.
4 Middleton & Co.
14 B. & F. Wf. Co., Ltd.
1 Maconochie Bros.
4 W. C. Bacon & Co.

**'s—**
**ne**
, 16 pkgs. Elkan & Co.

**s**
198 pkgs. Thames S. T & L. Co., Ltd.
36 "

**neal**
, 19 pkgs. G. S. Bruce
6 W. M. Smith & Sons
40 Swanston & Co.
16 A. Manier
18 Johnson, Hicks, & Co.
4 Kohner, Henderson, & Co.
1 H. Keck & Co.

**cts**
, 51 pkgs. Leach & Co.
80 A. J. Humphrey
117 Carey & Sons
5 Mory & Co.

**ler**
s, 903 pkgs. Beresford & Co.
413 Adamson, Gilfillan, & Co.
2,176 L. & I. D Jt. Co.

**o**
s, 6 chts. Forbes, Forbes, & Co.
270 Wallace Bros.
16 Patry & Pasteur
49 L. & I. D. Jt. Co.
58 Benecke, Souchay, & Co.
31 R. Von Glehn & Co.
1 L. & I. D. Jt. Co.

**bolams**
s, 1,200 pkgs. A. Hagan
1,177 J. Graves
1,366 W. Shelcott

**thalene**
y, 20 pkgs. Forbes, Abbott, & Co.

**thol**
y, 3 pkgs. T. H. Lee

**on**
1 pkg. Prp. Chmbln.'s Wf.

**a**
100 pkgs. Italo-Brit. S. N. Co.
ey, 70 J. W. Drysdale & Co.
825 J. Kitchin, Ltd.

**eric**
s, 411 L. & I. D. Jt. Co.
78 Clarke & Smith
175 Lewis & Peat
118 Brookes & Green
1,000 Anderson, Weber, & Smith
440 Ralli Bros.

**ia**
ey, 46 t. A. & W. Nesbitt
26 Boutcher, Mortimore, & Co.
2 M. D. Co.

**Farina—**
Germany, 100 pkgs. R. G. Hall & Co.
Holland, 100 J. Barber & Co.
U. States, 100 R. G. Hall & Co.
" 100 Prop. Scott's Wf.
" 50 J. Knill & Co.
Holland, 25 T. H. Lee
" 100 J. Anderson & Co.
Germany, 100 "
" 322 C. F. Webster & Co.

**Glucose—**
France, 200 pkgs. 200 c. J. Barber & Co.
Germany, 25 150 c. "
" 8 70 Prop. Sun Wf.
" 200 200 Trier, Meyer & Co.
" 400 400 J. Frank & Co.
U. States, 250 250 J. Barber & Co.
France, 300 300 L. Norman & Co.
" 200 200 Barrett, Tagant, & Co.
" 100 100 J. F. Ohlmann
U. States, 1,597 4,300 L. Sutro & Co.

**Guano—**
Germany, 280 t. Anglo Contl. G. Wks.

**Lithium Carbonate—**
U. States, 1 pkg. S. Lambert & Co.

**Manure—**
Germany, 70 t. Anglo Contl. G. Wks.
" 201 W. Montgomery

**Methyl Alcohol—**
U. States, 6 drs. Williams, Torrey, & Co.
Belgium, 8 cks. W. G. Blagden

**Mica—**
U. States, £30 Knight & Morris
Norway, 10 M. D. Co
E. Indies, 315 W. M. Smith & Sons

**Nickel Sulphate—**
Germany, 5 pkgs. Johnson, Mathey, & Co.

**Ochre—**
France, 60 cks. W. Harrison & Co.
Holland, 14 pkgs. Phillipps & Graves
Germany, 28 "
France, 63 Stobbs, Wilson, & Co.

**Painters' Colours—**
Germany, 2 cs. H. Lambert
" 7 cks. W. J. Pattison & Co.
" 1 36 pkgs. T. H. Lee
" 6 Phillipps & Graves
Holland, 8 W. H. Carey & Sons
Germany, 35 L. & I. D. Jt. Co.
" 4 A. Zumbeck & Co.
Holland, 2 Phillipps & Graves
Belgium, 18 T. Palmer
" 9 W. Harrison & Co.
Wellington, 200 Puttfarchen & Norman
France, 2 Hernu, Peron, & Co.
" 4 Bennett S. S. Co., Ltd.
Holland, 1 R. Baelz & Co.
Germany, 6 Lake & Williams
Sweden, 20 brls. Phillipps & Graves
France, 24 pkgs. Flageollet & Co.
Holland, 2 Wilkinson, Heywood, & Co.

**Paraffin Wax—**
U. States, 10 brls. H. W. Peabody & Co.
" 832 J. H. Usmar & Co.
Germany, 25 cs. Grosscurth & Luboldt

**Phosphate Rock—**
U. States, 1,080 t. Wyllie & Gordon
Belgium, 260 Lawes Chemical Manure Co.
" 90 Anglo Contl. G. Wks.
France, 55 "

**Phosphoric Acid—**
Germany, 55 pkgs. Phillipps & Graves

**Plumbago—**
Germany, 79 cks. Prop. Scott's Wf.
" 80 cs. T. H. Lee
" 90 Prop. Scott's Wf.
" 3 Brougham, Young, & Co.
Ceylon, 70 brls. Doulton & Co.
Belgium, 2 Prop. Scott's Wf.

**Potash—**
Canada, 28 c. J. Barber & Co.

**Potassium Bichromate—**
France, 19 pkgs. Carey & Sons

**Potassium Bromide—**
U. States, 10 pkgs. S. Lambert & Co.

**Potassium Carbonate—**
France, 80 c. J. A. Reid
" 100 F. W. Berk & Co., Ld.

**Potassium Chloride—**
Germany, 500 pkgs. F. W. Berk & Co., Ltd.
France, 19 pkgs. Carey & Sons

**Potassium Nitrate—**
France, 30 pkgs. A. B. Curtis & Co.

**Potassium Sulphate—**
France, 210 pkgs. Weatherley, Mead, & Co.
Germany, 508 Anglo Contl. G. Wks.
" 500 Coml. L Co.
France, 190 F. W Berk & Co., Ltd.
" 904 Anglo Contl. G. Wks.

**Saltpetre—**
Germany, 1 ck. Tatham, Bromage,
" 112 P. Hecker & Co. & Co.
Holland, 50 Tegner, Price, & Co.
Germany, 5 Craven & Co.
" 20 Baiss Bros. & Co.

**Soda—**
Germany, 1 cs. L. & I. D. Jt. Co.

**Sodium Acetate—**
France, 36 pkgs. S. F. Waters & Co.

**Stearine—**
Holland, 31 bgs. Robinson, Roberts, & Co.
Belgium, 25 C. S. Lovell

**Sulphur—**
Italy, 10 t. Italo-Brit. S. N. Co.
" 336 W. C. Bacon & Co.
" 7 F Smith
" 36 Pigou, Wilks, & Co.
" 113 G. Boor & Co.
" 82 Blackwood & Co.

**Talc—**
Italy, £240 Davies, Turner, & Co.
E. Indies, 200 Ross & Deering

**Tallow—**
U. States, 50 cks. Williams, Torrey, & Co., Ltd.
Sydney, 100 J. Greig
" 11 Coml. Banking Co. of Sydney
N. Zealand, 4 R. Brooks & Co.
" 70 Flack, Chandler, & Co.
U. States, 324 Price's Candle Co.
N. Zealand, 2 N. Z. L. & M. A. Co.
Queensland, 86 Beresford & Co.
Sydney, 6 "

**Tallow and Stearine—**
U. States, 5 cks. H. Rosenway & Co.
Belgium, 3 T. H. Lee

**Tartaric Acid—**
Italy, 20 pkgs. B. & F. Wf. Co., Ltd.
Holland, 32 "
" 4 Devon & Co.
" 4 T. H. Lee

**Tin Crystals—**
Germany, 5 pkgs. H. Lambert

**Turpentine—**
Savannah, 5,745 brls. Nickoll & Knight

**Ultramarine—**
Germany, 8 cs. J. Kitchin, Ltd.
" 10 pkgs. "
Holland, 4 Haeffner, Hilpert, & Co.
Belgium, 5 brls. Leach & Co.
" 7 W. Harrison & Co.

**Varnish—**
France, 12 pkgs. Flageollet & Co.
Holland, 12 J. & F. Seddon
" 12 Campagnie Mrtms. Belge
France, 2 P. Martin & Co.

**Verdigris—**
France, 1 pkg. C. F. Gerhardt

**White Lead—**
France, 9 cks. J. Watt & Sons
Germany, 17 Petri Bros.
" 20 G. Clifford
" 80 G. Steinhoff
" 40 Magee, Taylor, & Co.
" 12 Spies Bros. & Co.
Holland, 41 brls. J. L. Lyon & Co.
" 72 cks. G. Farmiloe & Sons
Germany, 12 Trummer & Co.

**Zinc Oxide—**
Holland, 40 brls. M. Ashby, Ltd.
France, 26 cks. J. Matton
" 27 Macqueen Bros

## LIVERPOOL.

*Week ending November 17th.*

**Acetate of Lime—**
New York, 1,910 bgs.

**Acetic Acid—**
Havre, 1 pkge. Cunard S. S. Co., Ld.

**Acids—**
Havre, 7 pkgs. 2 cs. Cunard S. S. Co., Ld.

**Ammonia—**
Havre, 2 pkgs. Cunard S. S. Co., Ld.
New York, 30 dms.

**Antimony—**
Hamburg, 134 bgs.

**Antimony Salt—**
Hamburg, 84 bgs.

**Asbestos—**
Montreal, 224 bgs.

**Barytes—**
Rotterdam, 23 cks.
Antwerp, 5

**Benzine—**
Havre, 1 pkge. Cunard S. S. Co., Ld.

**Boracic Acid—**
Leghorn, 20 cs.

**Boracite—**
Pandermo, 200 t. Roberts & Evans
" 300

**Castor Oil—**
Genoa, 15 cs. Evans, Sons & Co.

**Chemicals** (*otherwise undescribed*)
Rouen, 22 cks. Co-op. W'sale Society, Ld.

**Chloroform—**
Havre, 1 pkge. Cunard S. S. Co., Ld.

**Colours—**
Havre, 4 cks. Cunard S. S. Co., Ld.
Rotterdam, 7

**Cottonseed Oil—**
New York, 100 brls.

**Cream of Tartar—**
Tarragona, 5 cks. 5 pps.
Barcelona, 5 hds.

**Dyestuffs—**
**Argols**
Oporto, 31 cks. German Bank of London

**Divi Divi**
Amsterdam, 129 bgs. Browne, Geveke & Co.

**Extracts**
New York, 15 bxs. 5 brls. F. Ree
Philadelphia, 400
Marseilles, 205 brls.

**Gambier**
Singapore, 1,298 bls.

**Madder**
Marseilles, 8 brls.

**Myrabolams**
Bombay, 1,560 bgs.

**Sumac**
Palermo, 300 bgs. H. Rooke, Sons & Co.
" 130 J. Kitchen
" 1,100 184 bls.
Barcelona, 200 A. Ruffer & Son
" 50

**Farina—**
Antwerp, 5 bgs.

**Glucose—**
Rouen. 10 cks. Co-op. W'sale Society, Ld.
Spain, 50
**Limestone—**
Antwerp, 3 crts. J. T. Fletcher & Co.
**Manganese—**
Bordeaux, 78 t. R. J. Francis & Co.
**Ochre—**
Bordeaux, 33 cks.
**Paint—**
New York, 10 cks. Lightbound, Aspinall
Bombay, 217 dms.
Constantinople, 3 tins.
**Phosphate—**
Montreal, 625 t.
**Phosphate Rock—**
Brunswick, 260 t.
St. Valery, S.S., 266 Phospho-Guano Co., Ld.
**Plumbago—**
Genoa, 20 brls. 50 bgs.
**Potash—**
Rouen, 146 cks. Co-op. W'sale Society, Ld.
Hamburg, 39 cks.
**Potash Salts—**
Hamburg, 5,080 bgs.
**Potassium Carbonate—**
Hamburg, 10 cks.
Rotterdam, 1
**Pyrites—**
Huelva, 1,108 t. Tennants & Co.
" 1,935 Beauford & Co.
**Rosin—**
New York, 5 brls.
" 500 R. Crooks & Co.
Hamburg, 27 cs. 10 bgs.
Baltimore, 100 brls.
Brunswick, Ga., 4,207 brls.
**Salt—**
Barcelona, 1 bg.
**Saltpetre—**
Hamburg, 77 brls.
**Silica—**
Bremerhaven, 200 bgs.
**Silicate—**
New York, 5 bgs. W. L. Haries
**Soap—**
Leghorn, 315 bxs. Brown Brs.
" 600 Weaver & Sterry
Naples, 38 cs. P. Behrend
Genoa, 61
New York, 50
Marseilles, 8 G. G. Mackay
**Soapstone—**
Genoa, 200 bgs. G. G. Blackwell
" 508
" 500 W. Harrison & Co.
**Stearine—**
Rotterdam, 19 bgs.
Antwerp, 13
**Sulphur—**
Catania, 120 t. 205 bgs.
**Tallow—**
Boston, 50 hhds. 675 tcs.
In transit, 20 cs.
New York, 365 tcs.
Baltimore, 250
Philadelphia, 75
**Tar—**
In transit, 32 cks.
**Tartar—**
Naples, 2 cks.
Bordeaux, 11 cks.
**Tartaric Acid—**
Messina, 12 cks.
Bordeaux, 21
Rotterdam, 18
**Turpentine—**
Havre, 8 pkgs. Cunard S. S. Co., Ld.
Brunswick, Ga., 550 brls.
**Ultramarine—**
Bremerhaven, 20 cks.
Rotterdam, 10
**Varnish—**
Havre, 2 pkgs. Cunard S. S. Co., Ld.
**Verdigris—**
Bordeaux, 3 cks.
**Waste Salt—**
Hamburg, 4,127 bgs.
**White Lead—**
Rotterdam, 47 cks.
Antwerp, 4 J. T. Fletcher & Co.
**Zinc Ashes—**
Rouen, 22 cks. Co-op. W'sale Society, Ld.
**Zinc Oxide—**
New York, 100 brls.
Antwerp, 105

## HULL.

*Week ending November 19th.*

**Acetate—**
New York, 763 bgs. Wilson, Sons & Co., Ltd.
**Acetic Acid—**
Rotterdam, 17 ballns. W. & C. L. Ringrose
**Alkali—**
Flushing, 6 cks. Zeeland S.S.Co.
**Aluminium—**
New York, 1 cs. Wilson, Sons & Co., Ld.
**Barytes—**
Antwerp, 66 cks. H. F. Pudsey
Rotterdam, 5 W. & C. L. Ringrose
" 81 Hutchinson & Son
**Caoutchouc—**
Hamburg, 1 bg. 9 cs. C. M. Lofthouse & Co.
**Chemicals** *(otherwise undescribed)*
Stettin, 1 ck. Wilson, Sons & Co., Ld.
**Colours—**
Rotterdam, 1 ck. 7 pkgs. 21 pks. G. Lawson & Sons
" 2 cks. Storry, Smithson & Co.
Antwerp, 9 cks. Bailey & Leetham
Rotterdam, 107 pks. 1 cs. W. & C. L. Ringrose
" 6 cs. 5 cks. Hutchinson & Son
Ghent, 12 brls.
Hamburg, 2 cs. C. M. Lofthouse & Co.
Stettin, 50 cks.
Flushing, 29 cs. 13 222 pks. Zeeland S. S. Co.
Ghent, 27 cks.
Antwerp, 2 cs.
**Dextrine—**
Stettin, 165 bgs. Wilson, Sons & Co., Ld.
" 75
**Dyestuffs—**
**Alizarine**
Rotterdam, 64 cks. W. & C. L. Ringrose
**Extracts**
St. Malo, 25 cks.
**Farina—**
Harlingen, 2,020 bgs.
Hamburg, 100 C. M. Lofthouse & Co.
Stettin, 780 Wilson, Sons & Co., Ld.
" 200
Ghent, 128 cs. Wilson, Sons & Co., Ld.
Groningen, 550 bgs. Anglo-Dutch Trading Co.
Hamburg, 100 bgs. Wilson, Sons & Co., Ld.
**Glucose—**
New York, 100 brls. 50 pkgs.
Stettin, 300 bgs.
**Guano—**
Christiansund, 125 pks. Wilson, Sons & Co., Ld.
**Lead Acetate—**
Stettin, 45 cks. Wilson, Sons & Co., Ld.
**Limestone—**
Antwerp, 2 pks.
**Ochre—**
Marseilles, 210 cks. Wilson, Sons & Co., Ld.
" 77
**Paint—**
New York, 25 cs. Wilson, Sons & Co., Ld.
" 90 brls.
Marseilles, 43 pks. Wilson, Sons & Co., Ld.
**Pitch—**
Hamburg, 55 brls.
Amsterdam, 13 cks. H. F. Pudsey
**Plumbago—**
Hamburg, 91 cks. F. B. Grotrian & Co.
" 4 C. Johnson & Sons
" 110
**Potash—**
Rotterdam, 10 cks. G. Lawson & Sons
Antwerp, 54 pks. Wilson, Sons & Co., Ld.
**Rosin—**
Stettin, 3 cs. 30 bgs. Wilson, Sons & Co., Ltd.
Bordeaux, 3 brls.
**Saltpetre—**
Hamburg, 10 kgs. Wilson, Sons & Co., Ld.
**Soap—**
Hamburg, 1 cs. 5 brls. Wilson, Sons & Co., Ld.
Naples, 37 "
Genoa, 100 "
Marseilles, 18 "
**Soda—**
Rotterdam, 120 cks. Hutchinson & Son
" 11 cks. W. & C. L. Ringrose
**Stearine—**
Antwerp, 2 bgs. Wilson, Sons & Co., Ld.
**Tallow—**
St. Petersburg, 40 cks.
**Tar—**
St. Petersburg, 10 cks. Wilson, Sons & Co., Ld.
**Tartaric Acid—**
Rotterdam, 10 cks. W. & C. L. Ringrose
**Turpentine—**
Bordeaux, 4 brls. Rawson & Robinson
" 10
**Varnish—**
New York, 8 cs. Wilson, Sons & Co., Ltd.
**White Lead—**
Antwerp, 32 cks. Bailey & Leetham
Rotterdam, 9 Hanger, Watson & Harris

## GLASGOW.

*Week ending November 24th.*

**Alum—**
Hamburg, 149 cks.
**Barytes—**
Rotterdam, 22 cks. J. Rankine & Son
**Barytes Sulphate—**
Ghent, 415 bgs. 11 cks.
**Colours—**
Amsterdam, 1 ck.
Rotterdam, 8 brls. 3 bxs. J. Rankine & Son
Hamburg, 2 cks.
**Cream of Tartar—**
Rotterdam, 4 cks. J. Rankine & Son
" 10
**Dextrine—**
Stettin, 120 bgs.
**Dyestuffs—**
**Alizarine**
Rotterdam, 24 brls. 70 cks. J. Rankine & Son
**Aniline Dyes**
Antwerp, 5 cks.
**Extracts**
Antwerp, 8 cks.
Ghent, 5
Marseilles, 59 brls.
**Farina—**
Hamburg, 150 bgs.
**Ochre—**
Marseilles, 32 brls.
**Painters' Colours—**
Antwerp, 1 ck.
Ghent, 6 css.
**Phosphate of Lime & Phosphate Rock—**
Antwerp, 300 bgs.
**Plumbago—**
Antwerp, 10 bgs.
**Potash—**
Rotterdam, 76 cks.
**Pyrites—**
Huelva, 1,534 t. Tharsis Co., Ld.
**Sodium Acetate—**
Ghent, 8 cks.
**Stearine—**
Rotterdam, 13 cks. J. Rankine & Son
**Tartar—**
Bordeaux, 20 cks.
**Tin Oxide—**
Rotterdam, 1 ck.
**Ultramarine—**
Hamburg, 4 css.
**Waste Salt—**
Hamburg, qunty. 130 t. 250 cks. 1,000 bgs.
**White Lead—**
Ghent, 6 cks.
**Zinc Oxide—**
Rotterdam, 83 cks. J. Rankine & Son
" 20 "
Hamburg, 50 "

## TYNE.

*Week ending November 19th.*

**Alum Earth—**
Hamburg, 18 cks. Tyne S. S. Co.
**Colours—**
Hamburg, 1 ck. Tyne S. S. Co.
**Limestone—**
Antwerp, 2 cs. Tyne S. S. Co.
**Phosphate—**
Antwerp, 290 t. Langdale's Chemical M. Co.
**Saltpetre Salt—**
Hamburg, 650 t.
**Sulphur—**
Pomaron, 1,175 t. Mason & Barry
**Ultramarine—**
Rotterdam, 4 cks. Tyne S. S. Co.
Hamburg, 20 "

## GOOLE.

*Week ending November 9th.*

**Dyestuffs—**
**Alizarine**
Rotterdam, 110 pkgs.
**Extracts**
Rotterdam, 4 brls.
**Indigo**
Rotterdam, 15 chts.
**Dyestuffs** *(otherwise undescribed)*
Boulogne, 71 cks. 4 cs. 11 pkgs.
**Farina—**
Hamburg, 1,150 bgs.
Delfszyhl, 2,000
**Lead Acetate—**
Hamburg, 32 brls.

—
122 dms. 35 cks.
, 5 20
am, 20 brls.
re—
g, 60 kgs.

**Soda—**
Rotterdam, 100 brls.
**Waste Salt—**
Hamburg, 1,016 bgs. 292 cks. 223 t.
**Zinc Oxide—**
Antwerp, 20 brls.

## GRIMSBY.

*Week ending November 12th.*

**Chemicals** (*otherwise undescribed*)
Hamburg, 11 pkgs.
Antwerp, 6 bxs.

**Dyestuffs** (*otherwise undescribed*)
Dieppe, 7 cks.
**Farina—**
Hamburg, 180 bgs.
**Size—**
Antwerp, 30 pkgs.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*ending November 23rd.*

rk, 30 cs. £70
—
e, 3 c. £7
, 15 t. 16 c. £85
n, 5 11 32
3 17 22
, 4 1 21
r, 3 15 23
**ake—**
, 35 t. 2 c. £123
**a Sulphate—**
tinople, 2 t. 6 c. £13
**ia Salts—**
10 c. £18
ma, 2 t. 7 67
**ium Chloride—**
, 1 t. 1 c. £34
urg, 1 2 35
**ium Nitrate—**
ay, 17 rmlts. £114
**ium Sulphate—**
a, 118 t. £1,214
—
n, 1 t. £14
1 9 c. 28
3 9 44
**Sulphate—**
8 cks. £33
**ite of Lime—**
, 1 t. 3 c. £12
**ng Powder—**
tinople, 2 t. 4 c. £20
urg, 1 ck. £13
1 t. 2 c. £39
en, 10 16
**Crystals—**
tinople, 11 c. £16
**c Acid—**
e, 2 cs. £118
**Potash—**
n, 2 t. 3 c. £70
**Soda—**
n, 8 t. 14 c. £90
2 5 67
5 9 64
lon, 2 18 91
own, 9 15
3 11 62
rne, 2 12 84
tinople, 2 23
**als** (*otherwise undescribed*)
, 14 cs. £57
26 2 kgs. 60
e, 14 pkgs. 35
**cid—**
, 4 c. £36
e, 1 8
o, 1 10
5 kgs. 50
10 84
rg, 2 t. 324
lam, 3 24
ury, 1 8
tle, 1 8
, 5 38
4 32
**oducts—**
**ne**
i, 10 cs. £106
rk, 30 brls. 7 kgs. 41
, 1 16
e, 2 cks. 14

**Anthracene**
Dusseldorf, 97 cks. £887
Cologne, 87 362
**Naphtha**
Sydney, 30 drs. £73
Melbourne, 10 cs. 30
**Naphthalene**
Hamburg, 3 cks. £28
**Paraffin Wax**
Reval, 10 cs. £17
Hobart, 6 21
Gibraltar, 4 13
**Pitch**
Boston, 100 cks. 51
Calcutta, 25 brls. 16
Alexandria, 199 70
Dunkirk, 522 t. 780
**Tar**
Natal, 40 drs. £13
Boston, 500 brls. 207
Danzig, 250 cks. 120
**Tar Salts**
Hamburg, 10 cks. £12
Brussels, 2 30
Algoa Bay, 5 cs. 68
**Copper Sulphate—**
Rio de Janeiro, 10 t. £135
Lyttelton, 3 44
Nelson, 10 c. 9
**Cream of Tartar—**
Lyttelton, 10 c. £41
Rosario, 20 kgs. 85
Invercargill, 5 23
Melbourne, 3 t. 249
Sydney, 1 4 104
Wellington, 1 10 126
Hobart, 13 pkgs. 45
Fremantle, 7 30
**Disinfectants—**
Brisbane, 4 cs. 20 pkgs. £70
Batavia, 12 12
Adelaide, 4 9
Alexandria, 14 14
Sydney, 43 155
New York, 3 brls. 15
Natal, 125 23
**Flowers of Sulphur—**
Nelson, 1 t. £8
**Guano—**
Kingston, 25 t. £250
Landerneau, 216 2,160
Guadeloupe, 340 3,740
Demerara, 128 1,280
**Hypophosphites—**
New York, 21 cs. £260
**Manure—**
M. Video, 3 t. £12
Demerara, 120 1,230
Berbice, 20 205
Madeira, 1 8
Las Palmas, 10 1 c. 37
Hamburg, 50 500
Ghent, 50 500
Jersey, 225 13 1,481
Genoa, 195 668
Barbadoes, 50 363
**Oxalic Acid—**
Dunkirk, 5 t. £145
Sydney, 8 c. 13
**Potash Crystals—**
Montreal, 4 c. £8
Toronto, 3 7
**Potassium Bromide—**
Batoum, 1 ck. £25
**Potassium Chlorate—**
New York, 50 kgs. £141
Sydney, 15 brls. 101
**Potassium Cyanide—**
B. Ayres, 2 cs. £11
Rockhampton, 10 89
**Potassium Hypophosphite—**
New York, 4 cs. £62

**Saltpetre—**
Lyttelton, 10 c. £11
Oporto, 2 t. 19 59
Valencia, 1 4 24
Melbourne, 2 10 54
Auckland, 10 11
Wellington, 10 11
Sydney, 1 24
**Sheep Dip—**
Dunedin, 2 cts. 120 drs. £101
Lyttelton, 4 210 10 cks. 266
Invercargill, 3 50 50
B. Ayres, 450 cs. 1,350
M. Video, 200 600
Calcutta, 11 52
**Soda Ash—**
Constantinople, 2 t. £16
**Soda Crystals—**
Algoa Bay, 3 t. 10 c. £17
Townsville, 1 4
**Sodium Bicarbonate—**
Nelson, 2 t. £16
Sydney, 1 12 c. 27
Fremantle, 5 4
**Sodium Silicate—**
Nelson, 1 t. 10 c. £12
**Sulphites—**
Barcelona, 5 c. £68
**Sulphuric Acid—**
Natal, 1 t. 10 c. £20
E. London, 25 cs. 20
**Superphosphate—**
Jersey, 27 t. £81
Landerneau, 74 2 c. 222
**Superphosphate of Lime—**
Las Palmas, 20 t. £113
**Tartaric Acid—**
Lyttelton, 2 c. £11
Rosario, 35 brls. 540
Oporto, 5 26
Lisbon, 2 kgs. 10
Adelaide, 10 52
Invercargill, 2 12
Melbourne, 3 t. 10 153
Sydney, 4 24
Canterbury, 6 cs. 32
**Tartaric Acid and Alum—**
Brisbane, 2 c. £9
**Tartaric Acid and Citric Acid—**
Sydney, 10 c. £65

## LIVERPOOL.

*Week ending November 23rd.*

**Acetic Acid—**
Lisbon, 9 c. 2 q. £7
**Alum—**
Canea, 2 t. 10 c. £13
Malta, 3 16
Candia, 2 9 13
Piræus, 2 3 11
Syra, 2 18 14
Lisbon, 1 18 10
Beyrout, 5 6 26
Smyrna, 19 7 96
Rio de Janeiro, 1 6
Portland, O., 20 4 100
Sydney, 13 4 66
Alexandretta, 6 10 39
Guayaquil, 5 15 34
Ancona, 9 54
Naples, 1 15 10
Messina, 2 8 15
Santander, 2 15 16
Singapore, 2 4 13
**Ammonium Carbonate—**
Gothenburg, 5 c. £7
Valparaiso, 1 t. 5 39
Copenhagen, 1 6 42
Pasages, 8 13
Barcelona, 12 1 q. 20
Porto Alegre, 2 3 7

**Ammonium Chloride—**
Malta, 2 c. £3
Boston, 3 t. 14 81
Odessa, 1 33
Genoa, 1 1 35
Naples, 10 17
Leghorn, 11 18
Trieste, 2 1 1 q. 65
Philadelphia, 17 2 1 390
Barcelona, 2 11 3 85
Pasages, 15 2 26
**Ammonium Sulphate—**
Messina, 3 t. 1 c. 1 q. £32
Valencia, 52 9 2 577
Alicante, 10 9 100
Bordeaux, 10 105
Halifax, 12 8 135
Teneriffe, 5 10 56
Las Palmas, 5 1 53
New York, 126 5 1 1,299
Rouen, 20 10 207
Gr. Canary, 7 9 82
**Anthracene—**
Rotterdam, 12 t. 10 c. £290
**Antimony—**
Valparaiso, 2 cks.
**Antimony Sulphide—**
Santiago de Cuba, 2 c. £6
**Arsenic—**
Rosario, 5 c. £4
**Asbestos—**
Barranguilla, 5 cs.
Calcutta, 1 ble. 1
Valparaiso, 1
**Bisulphide of Carbon—**
Maranham, 5 dms. £5
**Bleaching Powder—**
Baltimore, 116 cks. 70 bxs.
Boston, 722
Callao, 7 6 cs.
New York, 139 20
Antofagasta, 4 brls.
Calcutta, 100
Constantinople, 25
Dunkirk, 141 cks.
Genoa, 89
Syra, 7
Venice, 40
New York, 24 t. 16 c. £205
Baltimore, 29 3 240
**Borax—**
Sydney, 7 c. £5
Antwerp, 1 t. 10 1 q. 45
Oporto, 5 2 9
Matanzas, 17 1 25
Hamburg, 2 9 2 74
Rotterdam, 8 16 256
Constantinople, 8 2 13
Sagua la Grande, 5 3 8
**Carbolic Acid—**
Rio de Janeiro, 4 t. 5 c. 2 q. £115
Vera Cruz, 10 24
Rotterdam, 21 10 674
Rosario, 5 20
Alexandria, 4 2 16
Copenhagen, 3 1 6
Bonny, 1 brl. 5
Genoa, 7 3 15
New York, 8 10 323
**Castor Oil—**
Barbadoes, 50 cs.
Victoria, V.I., 66
**Caustic Potash—**
Calcutta, 1 t. £21
**Caustic Soda—**
Baltimore, 450 dms. 60 bxs. 208 cks. 1,895 brls.
Barcelona, 48 18 brls.
Calcutta, 185
Galatz, 231 80 kgs.
Hamburg, 498
Ibrail, 24
Malta, 69
Monte Video, 50

New York, 20 bxs.
Portland, Or., 244
Seville, 175 54
Algiers, 35
Algoa Bay, 10 cs.
Amsterdam, 188 6
Batavia, 25
Bombay, 200
Cartagena, S., 42
Ceara, 60
Copenhagen, 12
Corunna, 8
E. London, 6 cs. 35
Fiume, 30
Genoa, 133
Havana, 80
Hiogo, 100
Lisbon, 16
Mazanillo, 10
Naples, 72
Neuvitas, 21
New Orleans, 50
Palermo, 10
Pernambuco, 25
Salina Cruz, 10
Samarang, 31
Santander, 18
Santos, 55
Sourabaya, 35
Stettin, 40 5
Trieste, 15
Yokohama, 50

**Chemicals** (*otherwise undescribed*)
Smyrna, 1 t. £32
Valparaiso, 4 cs 3 pkgs. 30
Mersyne 3 t. 4 c. 3 q. 105
New York, 20 13 465

**China Clay**—
Boston, 1,118 t.
Constantinople, 100 bgs.
Melbourne, 20 cks.
Odessa, 10 t.
Philadelphia, 25
Portland. M., 129
Rio de Janeiro, 6
Bombay, 2
Calcutta, 128 cks.
Piræus, 15 t. 4 c.

**Chloroform**—
Montreal, 1 cs.
Pernambuco, 2

**Chromate of Iron**—
Rotterdam, 3 t. 7 c. £46

**Chrome Ore**—
Dunkirk, 19 cks.

**Citric Acid**—
Vera Cruz, 2 q. £7

**Citrochloric Acid**—
Alexandra, 1 cs. £7

**Coal Products**—
**Aniline Colours**
Boston, 12 kgs.
Montreal, 5 1 bx.
New York, 24 cks.
Bombay, 3 cs.
**Aniline Oil**
Barcelona, 3 dms.
**Aniline Salts**
Bombay, 5 cks.
New York, 29 50 cs.
Barcelona, 4

**Copperas**—
Canea, 3 t. 4 c. £6
Smyrna, 6 15 16
Candia, 3 4 6
Syra, 4 6 2 q. 10
Galatz, 6 9 1 14
Beyrout, 7 10 15
Rio de Janeiro, 9 5 20
Natal, 14 8

**Copper Sulphate**—
Victoria, B.C., 2 t. 19 c. 1 q. £43
Boston, 12 19 3 195
Bordeaux, 65 5 2 975
Barcelona, 9 17 3 141
Oporto, 19 14
Venice, 20 2 290
Lisbon, 1 9 2 22
Rouen, 40 600

**Disinfectants**—
Baltimore, 20 dms. £7
Rangoon, 10 cks. 11
Yokohama, 1 t. 10 c. 63
B. Ayres, 8 18 2 q. 250
Bombay, 2 cs. 12
Marseilles, 9 3 44
Rio de Janeiro, 3 cs. 17

**Farina**—
Magog, 3 cks.

**Guano**—
Barcelona, 4 t. 19 c. 3 q. £59

**Iron Chloride**—
*Bordeaux*, 16 t. 17 c. £62

**Iron Oxide**—
Capetown, 3 t. 19 c. £9

**Magnesia**—
Havre, 10 cs.
St. Nazaire, 8
M Video, 6
Valparaiso, 15

**Magnesium Carbonate**—
Vera Cruz, 5 cs. 7 c. £20

**Magnesium Sulphate**—
Vera Cruz, 15 c. £4

**Manganese**—
Havre, 4 cks.
Hamburg, 5 t.

**Manure**—
Havana, 1 t. £28
Barcelona, 10 2 c. 1 q. 30
Valencia, 100 15 2 300
Gandia, 50 1 369

**Metallic Sodium**—
Rotterdam, 12 c. 1 q. £131

**Paint**—
Barbadoes, 60 kgs.
Bathurst, 10 cs.
Cadiz. 44 14 dms.
Gibraltar, 88
Gr. Canary, 104
Lisbon, 275 10
Newport News, 41 cks.
New York, 1 brl.
Port-au-Prince, 4
Puerto Plata, 40 21
Rangoon, 6 24 pkgs. 8
Rio Nunez, 25 1
Santander, 30 dms.
Singapore, 50
Smyrna, 105 tns.
Teneriffe, 104
Algoa Bay, 6
Bombay, 23
B. Ayres, 25 cs.
Calcutta. 7 12
Cape Hati, 4
Capetown. 93 2
Fernando Po. 9 bkts.
Hamburg. 4 cs.
Mayaquez, 4 brls.
Panama, 14
Parnahiba, 8
Pernambuco, 5
Rio de Janeiro, 10 30 dms.
Sagua la Grande, 5 16 brls.
Santiago, 2 tcs.
Sierra Leone, 4
Syra, 20
Varna, 18 pkgs.
Vera Cruz, 4 cs

**Painters' Colours**—
Acajutla, 2 cs.
Amapala, 12
Belize, 230 kgs.
Boston, 4 cks. 125 brls.
B Ayres, 21
Capetown, 60 kgs.
New York, 7 cs. 200
Pernambuco, 135
Rio de Janeiro, 16 cs. 3 crts.
Sydney, 17
Antwerp, 5 cks. 8 kgs. 1 dm.
Bombay, 694 pkgs. 5 cs.
Calcutta, 23 15
Lisbon, 8 brls. 100
Manaos, 15 4 1
Malta, 34
Para, 2 19 tcs.
Piræus, 1 80
Shanghai, 13 cks.
Trieste, 32
Valparaiso, 181 brls. 20 197

**Paraffin Wax**
Constantinople, 5 cs.
Odessa, 15 bgs.
Smyrna, 17 5 cks.
Boston, 50 cs.

**Phosphorus**—
Shanghai, 34 cs. £302
Victoria, B.C., 1 c. 1 q. 13
Hiogo, 25 cs. 321
B. Ayres, 1 t. 12 264

**Picric Acid**—
Rosario, 1 c. £7
New York, 2 t. 1 1 q. 171

**Pitch**—
La Rochelle, 50½ t.
Marseilles, 1,125
New York, 108 cks.
Volo, 2 t. 13 c.

**Plumbago**—
Junin, 4 cks.
Valparaiso, 7 cs.

**Potash Alkali**—
Porto Alegre, 5 c. £7

**Potash Salts**—
Boston, 3 t. 1 c. £270

**Potassium Bicarbonate**—
Montreal, 5 c. £9

**Potassium Bichromate**—
Halifax, 6 c. 1 q. £13
Santiago de Cuba, 1 5
Rotterdam, 5 t. 2 197

**Potassium Carbonate**—
Boston, 3 t. 12 c. £106

**Potassium Chlorate**—
St. Petersburg, 2 t. 10 c. £140
Philadelphia, 2 10 140
Copenhagen, 2 120
Genoa, 1 56
Hamburg, 1 56
Alexandria, 1 50
Boston, 7 10 396
Yokohama, 10 456
Stettin, 1 54
Baltimore, 50 413
Hiogo, 17 903

**Potassium Prussiate**—
Genoa, 3 c. £34

**Salt**—
Accra, 5 t.
Algoa Bay, 61 18 c.
Baltimore, 450
Benin, 25
Cameroons, 38
E. London, 80
Halifax. 30 8
Ingernosole, 53
Natal, 110 6
Rangoon, 4,154
Rosario, 6¼ 3
Sydney. 50
Talcahuano, 2 3
Valparaiso, 4¼
Akassa, 200
Antwerp, 295
Bakana. 17 17
Barbadoes, 340
Black Point, 25
Boston, 430
Brussels, 2
Cape Palmas, 6½
Copenhagen, 290
Demerara, 18
Dixcove, 12½
Ghent, 263
Landana, 5
Melbourne, 25
Mobile, 188
N. Orleans, 270
Newport News, 400 18
New York. 80
Old Calabar, 70
Ooobo, 17 17
Rotterdam, 439
Santos, 1
Sierra Leone, 350¼

**Salt Cake**—
Pittsburgh, 125 t. 9 c. £327
Baltimore, 422 3 963
Wellington, N.Z., 5 2 14

**Saltpetre**—
Parahyba, 1 t. 11 c. 1 q. £38
Almeria, 2 16 3 59
Iquitos, 1 9 2 33
Porto Alegre, 9 10
Maranham, 2 4 1 49
Parahyba, 6 6
Bilbao, 1 6 3 29
Gr. Canary, 2 2 1 47
Teneriffe, 10 3 9
Syra, 3 15 2 77

**Sheep Dip**—
M. Video, 10 c. 1 q. £30
B. Ayres, 10 t. 11 3 345

**Size**—
Magog, 4 cks.

**Soap**—
Alexandria, 35 cs.
Algoa Bay, 272 bxs. 8
Barbadoes, 750 2 brls.
Belize, 200
Brussels, 400
Calcutta, 35 tcs. 68 500 bdls.
C. C. Castle, 3
Coronel, 20
E. London, 582 bxs. 70
Gibraltar, 385
Gr. Canary, 75 4
Halifax, 200
Hamburg, 388
Hong Kong, 10
Jamaica, 50
Lagos, 20
Lanzarote, 12
Loanda, 25 1
Madras, 10
Manaos, 151
New York, 634 43
Palermo, 2
Pt. Elizabeth, 200
Rotterdam, 500
St. John's, Nfld., 1
,, Vincent, 100
Samana, 1
Teneriffe, 50
Toronto, 500
Valparaiso, 100 1
Accra, 130
Akassa,
Ambona, 250
Attoaboe, W.C.A., 22 bxs.
Axim, 32 bxs.
Bata, 30
Bathurst, 40
Bereby, W.C.A., 35
Bocas del Joro, 76
Bonny, 100
B. Ayres, 1 cs.
Cameroons, 120
Capetown, 821
Colon, 200
Constantinople, 1
Curacao, 155
Demerara, 3,250 1
Madras, 12
Mandji, 25
Matadi, 20
Menada, 250
Old Calabar, 300
Oporto, 1
Oran, 50
Para, 50
Penang, 200
Pt. Natal, 82
,, Said, 30
Rio de Janeiro, 2
St. Lucia, 315
Salt Pond, 40
Sierra Leone, 320
Smyrna, 1
Trinidad, 624
Victoria, B.C., 8

**Soda Alkali**—
Calcutta, 35 brls.
Lisbon, 45
Salonica, 40
Smyrna, 35
Syra, 37

**Soda Ash**—
Baltimore, 75 cks 1,060 bgs.
Boston, 195 2,304
B. Ayres, 75 200 brls.
Calcutta, 41
Galatz, 10
Gothenburg. 11
Naples, 10
Rio de Janeiro, 5 120
Syra, 100
Winnebah, 25
Yokohama, 372 100
Ceara, 30
Maranham, 20
New York, 1,257 3 240 bgs.
Philadelphia, 736 1,334
Rio Grande, 50 brls.
Rotterdam, 14
Smyrna, 50
Trieste, 20
Venice, 11

**Soda Crystals**—
Bombay, 100 kgs.
Boston, 560 brls.
Calcutta, 81 66
Lisbon, 1
Rosario, 50
Singapore, 6
Havana, 4
Malta, 100
Montreal, 50
Natal, 14
Pernambuco, 150
Pisco, 20
Salonica, 14
Sourabaya, 249

**Sodium Biarseniate**—
Lisbon, 1 ck.

**Sodium Biborate**—
Stettin, 22 cks.

**Sodium Bicarbonate**—
B. Ayres, 100 kgs. 246 cks.
Dunkirk, 20
Venice, 100
Winnebah, 1,700
Antwerp, 80 2
Boston, 200
Copenhagen, 190 37
Havre, 53
M Video, 100
New Orleans, 20
Randers, 5 2
Rotterdam, 70
Santander, 50
Syra. 40
Victoria, V.I., 10 5 cs.

**Sodium Carbonate—**
Pernambtico, 10 brls.
**Sodium Chlorate—**
New York, 100 kgs.
Boston, 50
Rotterdam, 10
**Sodium Hyposulphite—**
Portland, M., 60 brls.
**Sodium Silicate—**
Montreal, 132 cks.
Tarragona, 12
Barcelona, 100 brls.
Carthagena, S., 10
Naples, 14
**Sodium Stannate—**
Barcelona, 3 brls.
**Sodium Sulphate—**
Portland, M., 70 brls.
**Sulphur—**
Philadelphia, 70 t. 1 c. £363
Antwerp, 20 2 90
Boston, 200 8 932
Gothenburg, 83 2 371
Sannesund, 327 11 2 q. 1,536
Parahyba, 4 2
Maranham, 3 1 2
**Superphosphate—**
Denia, 50 t. 1 c. £319
**Superphosphate of Lime—**
Las Palmas, 2 t. £5
**Tallow—**
Alexandria, 18 brls.
Barbadoes, 2 cks.
C. C. Castle, 10 cs.
Carril, 5
Gothenburg, 34
Dixcove, 2
**Tartaric Acid—**
Montreal, 19 c. £107
**Turpentine—**
Beyrout, 10 dms. £5
Manila, 40
**Varnish—**
Barbadoes, 2 dms.
Bombay, 2 kgs.
Winnebah, 3 cs.
Calcutta, 2 brls.
Capetown, 9 cs.
Carthagena, S.A., 1 ck.
Constantinople, 8 cs.
Leghorn, 3 cks.
New York, 3 cs.
**Verdigris—**
Rio de Janeiro, 1 c. £6
**White Lead—**
Boca, 20 cks.

## HULL.

*Week ending November 19th.*

**Alkali—**
Reval, 120 cks.
**Aniline—**
Riga, 5 bls.
**Bichrome—**
Hamburg, 24 cks.
**Bleaching Powder—**
Harlingen, 33 cks.
**Borax—**
Stockholm, 16 cks.
**Caustic Soda—**
Antwerp, 37 dms.
Amsterdam, 30
Fiume, 17
Konigsberg, 87
Riga, 1,010 118 cks.
St. Petersburg, 10
Stettin, 35
**Chemicals** *(otherwise undescribed)*
Antwerp, 20 pks.
Amsterdam, 20
Bergen, 2 cs.
Boston, 60 cks.
Copenhagen, 160 15 32 kgs.
Christiania, 35 4
Dunkirk, 15
Gothenburg, 40 10 20
Hamburg, 10 301 100
Hango, 1
Konigsberg, 9 100
Libau, 10
New York, 170 100
Rotterdam, 16 30
Reval, 32
Riga, 7 29
Rouen, 50 pkgs.
St. Petersburg, 13 205
Stettin, 144 120 pkgs.
Trieste, 20
**Cottonseed Oil—**
Antwerp, 758 c.
Bremen, 118
Hamburg, 3,646
Konigsberg, 50
Rotterdam, 723
Stettin, 207
Trieste, 700
**Dyestuffs** *(otherwise undescribed)*
Amsterdam, 1 cs. 4 bls.
Boston, 8 cks.
Hamburg, 1
Rouen, 1 10
St. Petersburg, 20
**Gypsum—**
New York, 20 t.
**Linseed Oil—**
Antwerp, 1 c.
Bergen, 34
Christiania, 267
Drontheim, 235
Flushing, 140
Hamburg, 186
Hango, 87
New York, 356
Rotterdam, 16
Stavanger, 17
**Manure—**
Hamburg, 20 t.
Rotterdam, 489
**Mineral White—**
Amsterdam, 200 bgs.
Harlingen, 200 bls.
**Naphthalene—**
Riga, 106 bls.
**Ochre—**
Amsterdam, 2 cks.
**Painters' Colours—**
Antwerp, 1 cs. 52 cks. 136 pkgs.
Amsterdam, 16
Bergen, 95 dms.
Copenhagen, 6
Christiania, 86
Dunkirk, 4
Fiume, 3
Ghent, 4
Hamburg, 6 cs. 34 27 pks.
Harlingen, 5
New York, 192 50 205
Rotterdam, 33 3 1
Rouen, 4
Stettin, 120
Trieste, 10
**Pitch—**
Antwerp, 60 t.
Dunkirk, 156
**Size—**
Flushing, 10 cks.
**Soap—**
Christiania, 45 cs.
**Tar—**
Amsterdam, 3 cks.
Hamburg, 12
Libau, 50
Rotterdam, 10
**Varnish—**
Copenhagen, 2 cks.
Hamburg, 36 cs.
Rotterdam, 2
Antwerp, 2

## GLASGOW.

*Week ending November 24th.*

**Ammonium Sulphate—**
Antwerp, 100 t. 18 c. £1,360
**Aniline Dye—**
Calcutta, 2½ c. £42
**Bichrome—**
Antwerp, 4 t. 19½ c. £180
Christiania, 12 cks. 715
Rouen, 36 t. 9 c. 1,358
**Boracic Acid—**
Christiania, 3 cks. £37. 12s.
**Borax—**
Christiania, 13½ c. £21
**Chloride of Lime—**
Boston, 6 t. £50
**Farina—**
Oporto, 2 t. 8 c. £34
**Iodine—**
Rotterdam, 2 cks. £605
**Lead Acetate—**
Bombay, 6 t. 3½ c. £96
**Linseed Oil—**
Cape Colony, 3 t. 8¾ c. £79
**Litharge—**
Oporto, 4 t. 4 c. £55
**Magnesium Sulphate—**
Calcutta, 5 t. £24
Bombay, 5 10½ c. £21. 18s.
**Manure—**
New York, 7 t. 16 c. £67
**Nitric Acid—**
Madras, 1 t. 5 c. £23
**Paint—**
Cape Colony, £205
Calcutta, 14 t. 221
**Painters' Colours—**
Rotterdam, 1 ck. £10
Calcutta, 85
**Paraffin Wax—**
Rouen, 1 t. 7¾ c. £41
**Pitch—**
Oporto, 51 t. 13 c. £41
Amsterdam, 150 225
Seville, 251 6 125
**Potassium Bichromate—**
Boston, 8 t. 10¾ c. £325
Bombay, 2 73
**Potassium Chlorate—**
Bombay, 7½ c. £22. 15s.
**Potassium Prussiate—**
Rouen, 5 t. 18 c. £327
New York, 9 1 846
**Rosin—**
Bombay, 31 t. 11 c. £172
**Salt—**
Elsinore, 130 t.
**Salt Cake—**
Baltimore, 200 t. 2 c. £525
**Soap—**
New York, 8 t. 12½ c. £136
In transit, 40
Bombay, 1 16 21
**Sodium Bichromate—**
Rouen, 5 t. 13½ c. £86
**Sulphuric Acid—**
Natal, 3 t. 7¾ c. £20
Colombo, 4 5½ 22
Madras, 7 14½ 69
**Tallow—**
Cape Colony, £130
**Tar—**
Calcutta, 162 t. 8¾ c. £288
**White Lead—**
Cape Colony, £168
Fremantle, 4 t. 1¾ c. £78

## TYNE.

*Week ending November 19th.*

**Alkali—**
Rotterdam, 2 t. 3 c.
**Alum—**
Barcelona, 11 t. 1 c.
**Alumina Sulphate—**
New York, 15 t. 1 c.
**Ammonia—**
Genoa, 20 t. 11 c.
**Ammonium Chloride—**
Danzig, 1 t. 12 c.
**Ammonium Sulphate—**
Valencia, 50 t.
**Antimony—**
Barcelona, 2 t. 10 c.
Hamburg, 3
New York, 45
**Arsenic—**
Antwerp, 3 t. 8 c.
Odense, 1
**Barium Binoxide—**
New York, 2 t.
**Barytes—**
Hamburg, 50 t. 18 c.
New York, 100
Danzig, 5
**Bleaching Powder—**
Hamburg, 76 t. 5 c.
Antwerp, 1
Bergen, 5 1
Christiania, 10 4
New York, 50 1
San Francisco, 3 2
Danzig, 78 8
Norrkoping, 40 3
Stockholm, 2 18
Rotterdam, 18 10
Gothenburg, 5 6
Copenhagen, 15 14
Genoa, 18 6
**Caustic Soda—**
Hamburg, 1 t. 3 c.
Christiania, 4 18
Valencia, 10 3
New York, 155 15
Danzig, 31
Stockholm, 24 6
Rotterdam, 12 3
Copenhagen, 19 19
Genoa, 52 13
**Copperas—**
Aarhuus, 1 t. 16 c.
Copenhagen, 1
**Guano—**
Barcelona, 6 t. 17 c.
**Litharge—**
Hamburg, 3 t. 16 c.
Stockholm, 3 11
Copenhagen, 3 11
Genoa, 1 3
**Magnesia—**
Barcelona, 6 t. 5 c.
Hamburg, 2
Odense, 4
Genoa, 1 9
Valencia, 6
**Ochre—**
Christiania, 3 t. 4 c.
**Oxalic Acid—**
Horsens, 6 c.
**Paint—**
Antwerp, ½ c
Drontheim, 2
**Phosphorus—**
Barcelona, 16 c.
**Soda—**
New York, 135 t. 5 c.
Frederikshavn, 2 18
Nakskov, 6 3
Stockholm, 35 3
Copenhagen, 34 7
Genoa, 50 2
Bergen, 5 2
**Soda Ash—**
Hamburg, 10 t.
Christiania, 4 14 c.
Norrkoping, 5 12
**Sodium Hyposulphite—**
Antwerp, 1 t. 5 c.
Christiania, 10
New York, 25 4
Genoa, 2 2
Reval, 10 16
**Sulphur—**
Antwerp, 30 t.
Christiania, 75
Gothenburg, 60
**Tallow—**
Hamburg, 2 t. 8 c.
**White Lead—**
Stockholm, 9 t. 2 c.
Copenhagen, 2 13

## GOOLE.

*Week ending November 9th.*

**Benzol—**
Ghent, 47 dms.
Rotterdam, 83 cks.
**Bleaching Powder—**
Antwerp, 22 cks.
**Chemicals** *(otherwise undescribed)*
Rotterdam, 90 cks.
**Creosote—**
Kusyna, 1,400 cks.
**Manure—**
Bruges, 217 bgs.
Rotterdam, 803
**Pitch—**
Antwerp, 297 t.

## GRIMSBY.

*Week ending November 12th.*

**Chemicals** *(otherwise undescribed)*
Dieppe, 1 ck.
Hamburg, 12 cs. 48 dms.
**Coal Products** *(otherwise undes.)*
Dieppe, 97 cks.
Hamburg, 21 drs.

# PRICES CURRENT.

WEDNESDAY, Nov. 30th, 1892.

Prepared by Higginbottom and Co., 116, Portland Street, Manchester.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids:—** | | | | |
| Acetic, 25 % and 40 % | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | 50/- | | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 1¾ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3¼ |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 %) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 10 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 1 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 10 | 2 | 6 |
| ,, ,, (grey) Hull | ,, | 10 | 2 | 6 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6 |
| Aniline Salt ,, | ,, | 0 | 0 | 5⅞ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 3 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes:—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8 |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 0 |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 6 |
| ,, 50/90 ,, | ,, | 0 | 1 | 3 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 4⅞ |
| ,, (crude 60°) | per gallon | 0 | 1 | 5 |
| Creosote (ordinary) | ,, | 0 | 0 | 1¼ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 1¾ |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 0 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 1 | 0 |
| Coke-oven Oils (crude) | ,, | 0 | 1 | 1 |
| Copper | per ton | 48 | 6 | 3 |
| ,, Sulphate | ,, | 15 | 15 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 10 | 0 |
| ,, Litharge Flake (ex ship) | ,, | 13 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| *Nitrate* | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 6 | 5 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 3 |
| Naphtha (Wood), Solvent | ,, | 0 | 3 | 10 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 4 | 7½ |
| **Oils:—** | | | | |
| Cotton-seed | per ton | 18 | 5 | 0 |
| Linseed | ,, | 19 | 5 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 7 | 6 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 | 0 |
| Silver (metal) | per oz. | 0 | 3 | 3¼ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 2 | 6 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 5 | 15 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 18 | 0 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 15 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Borate (Borax) | net, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | net pr. ton (10 ton lots) | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, (10 ton lots) | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 10 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 10½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¾ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 12 | 6 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7¼ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7½ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone: Best Quality (nominal) | ,, | 4 | 10 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 97 | 0 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 18 | 17 | 6 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# CHEMICAL TRADE JOURNAL

AND

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## Notices.

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sements intended for insertion in the current week's issue ch the office by **Wednesday morning** at the latest.

## UNION IS STRENGTH.

FOR about the last fifteen months we have been reporting the proceedings of the Rivers Mersey and Irwell Joint Committee in these columns, and very interesting and instructive have these reports been to manufacturers and others, for by means of them they have been able to learn the attitude taken by this committee in regard to themselves.

Naturally manufacturers are not disposed to harbour too friendly a feeling for those who take upon themselves the task of stirring up the question of river pollution, especially when the investigation of this question threatens to put manufacturers to considerable expense.

For all that, we feel sure that the majority of manufacturers who are polluters are now fully alive to the necessity of taking some measures to improve the state of the Irwell and Mersey.

This point was indicated pretty clearly by the fact that it was largely though indirectly owing to manufacturers meeting the Joint Committee half way when discussing matters at the outset, that the new Prevention of Pollution Act was passed this year, manufacturers having to all appearances perceived that the Committee had, as far as they had gone, acted up to their professed policy of co-operation, toleration, and one law for all.

This spirit has, we think, been consistently carried out. The necessity for coercion is sure to arise in some cases, and we think that the advantages of an impartial Joint Committee to take action in such cases were fully recognised by and carried much weight with manufacturers when the full purpose of this Committee in petitioning for additional legislation was put before them. That the Committee is capable of taking prompt action when necessary there can be no doubt, and we might go farther and say that there is scarcely any other body capable of taking up such matters, if we are to prevent time being wasted in mud throwing instead of getting to business and a settlement.

It will be seen, however, from the report of the proceedings of the Joint Committee, which appears in our columns this week, that the Salford Corporation think this Committee shows evidence of supineness, and so have taken upon themselves the task of informing certain riparian manufacturers that proceedings will be taken against them in two months' time unless they stop polluting the river, despite the fact that in one case the same works had been hauled over the coals by the Joint Committee and given six months' grace.

This is rough on the manufacturers to say the least, and it is certain that no real good will be done to the rivers if manufacturers are to be placed between two lines of fire and "peppered" at by both the Gatling guns of the Corporation and the lighter arms of the Joint Committee; for apart from disgusting manufacturers, the two rival authorities will eventually destroy each other with their ricochets especially if the Joint Committee bring their heavy ordnance into play.

It is not our intention, however, to enter into a discussion of how far the Corporation trespassed on the rights of the Joint Committee or presumed upon their own. The details of the question are fully set forth in the report of the proceedings, and we doubt not that the Joint Committee are quite capable of taking care of themselves. The point that exercises our mind is, why this sudden activity on the part of the Corporation? Do they, like the war horse, smell the battle afar, and wish to show up the manufacturer in the hope of diverting attention from themselves?

Six months after the publication of Sir H. Roscoe's report to the Joint Committee they discovered that "it was not worth the paper it was printed on," although it cost three hundred guineas. We were cognisant of this fact after reading the report once or twice when it was published, but it was not our business, and from its nature it could hardly do any harm, so what need for making a fuss about the matter. Though a standard of purification be not adopted on the recommendation of such an eminent chemist, it does not follow that satisfactory standards do not exist, which in some form or other will have to be adopted ultimately. But this is not the point, the wonder is that the Corporation, so prominent in sewage matters, should have only just discovered the fact, but they have a good deal left to discover even now.

There is one thing, however, over which we are quite at sea. We have learnt after a long time and much unpleasant experience that the Rivers Pollution Act of 1876 is virtually no good, and after a lot of labour and expense we have obtained further powers by the Act of 1892, yet the Corporation fall back on the old Act and institute prosecutions under the same. Apparently they give to themselves the lie direct, for have they not been strenuously assisting the Joint Committee to get this new Bill passed? Why then is it to be thus suddenly discarded? It can't be because the Joint Committee do not make use of their new law, for when the Corporation last year took proceedings against Bury under the old Act they had to abandon the case, yet we have recently seen Bury, at all events, fined, even if the decision has been appealed against.

It is nothing more or less, however, than the "Pot calling the kettle black," for the Corporation to prosecute on the ground of pollution, for although crediting themselves with leading the van in the question of sewage purification, if the Joint Committee served a notice on the Corporation to stop putting sewage into the river within, say, twelve months, there would be plenty to be done in that twelve months. When this has been done, unless the Corporation are pretty smart, they will find they come a fairly long way down the list of those who have virtually treated their sewage or effluents successfully, despite the unparalleled and prodigious strides which they fancy they have made.

But more important than all is the fact that if the Joint Committee is not made the sole authority the whole aim and object of this Committee, and, in fact, its *locus standi*, will be destroyed. All the bitter feeling and enmity which we hoped had at last been finally buried will be brought up again with renewed force, and all the work done and money spent in the endeavour to get if not a clear at least a decent river will become void and the effort futile.

We hope, however, that things will turn out differently, and in the meantime we shall look with interest to see what the deputation to the Local Government Board will lead to. From past experiences of the functionaries of that long-winded body, our faculties of vision will be severely taxed before we see the end.

## CULTIVATION OF SUGAR-BEET IN SCOTLA

SEVERAL attempts have at different times been made to enc farmers in the United Kingdom to cultivate beet-roots f manufacture of sugar. Nitrate of soda being largely employed cultivation of beets, the Permanent Nitrate Company in L offered, some time since, a premium for the best crop grow nitrate in conjunction with other manures. Only about t farmers in the east of Scotland and six in the west took the mat however, though Mr. James Aitken, a well-known sugar refin Glasgow, offered an additional premium.

Dr. G. Schack-Sommer, of Liverpool, has also devoted a gre of attention to this matter, reading in 1890 and 1891 a paper the Liverpool section of the Society of Chemical Industry o subject. He has also spent a lot of time and trouble endeavour get farmers in England and Ireland to recognise the importance branch of agriculture, by gratuitously supplying seed to those were willing to experiment. Further, he has expressed his willin to analyse the roots and report on the same for nothing, compari results, with the results obtained with the choicest roots gro Germany, which have been examined by Mr. F. O. Licht, a Ge expert.

This offer he has put into actual practice in connection wit experiments referred to at the outset, as he analysed the beet grown in the competition, and also acted as adjudicator, the pre being awarded by him to Mr. J. Dobbie, of Campend, Dal That the cultivation of beet-root in this country can be ma financial success the results of the competition in Scotland have c shown. Over fifteen millions of pounds sterling are paid to forei yearly for sugar, while beet-roots can be grown in this country a than £12. per acre; sugar manufacturers being able to produce profit, if the cost of the raw material was increased fifty per above the figure just mentioned.

The failure of the attempt which was made some years ba introduce this industry at home, seems to linger in the min farmers, despite the fact that the German bounty system, which w itself enough to render success improbable, now virtually no l exists, and further, that the latest experiments, both in the U Kingdom and Canada, have been productive of highly satisfa results.

We therefore now place on record the results of the experi lately conducted in the east of Scotland. Five competition lots submitted to Dr. Schack-Sommer, and the successful can nominated by him has already been mentioned. The results w follows:—

| Weight per acre | | | | | | Average saccharine richness. | Quantity of sug acre in roo | | |
|---|---|---|---|---|---|---|---|---|---|
| Roots. | | | Shaws. | | | | | | |
| Tons | cwt. | qr. | Tons | cwt. | qr. | Per cent. | Tons | cwt. | qr. |
| 15 | 11 | 1 | 12 | 9 | 0 | 14·63 | 2 | 5 | 2 |
| 13 | 15 | 1 | 12 | 1 | 1 | 15·10 | 2 | 1 | 2 |
| 14 | 19 | 0 | 30 | 13 | 0 | 13·44 | 2 | 0 | 0 |
| 11 | 5 | 1 | 10 | 19 | 0 | 14·27 | 1 | 12 | 0 |
| 9 | 13 | 0 | 12 | 19 | 0 | 12·00 | 1 | 1 | 3 |

The respective quantity of nitrate used per acre by each was 10, 2½, and 3 cwt., in conjunction with other manures.

The Dalkeith Agricultural Society, when forwarding the roots t Schack-Sommer, reported as follows:—The crops of beet on th farms inspected were generally in a healthy and vigorous cond and, for a first attempt, fairly well grown. The sites were well c for the trials, varying in aspect and exposure, and at altitudes be 200 and 300 feet. The soils were generally of a deep, friable well drained, and of a suitable nature for growing good beet. methods of cultivation varied considerably, as well as the dis between the rows and between the roots, and in future trials could be much improved. About 30 per cent. of the plants ha to seed, far too large a proportion, and as all the lots were alik on all the farms, it pointed to a low quality of seed more than in the cultivation. Fresh, sound seed is imperative for a fair t competitions of this kind. Taking into consideration the circumstances, the experiments have been a decided success production of a crop of sugar beet-root.

The three sorts of seeds used by each competitor were mark (Schrilber and Son), SO (same), and WL (Gebruder Dippe).

The time of vegetation ranged from 141 to 199 days.

ACCIDENT AT A GAS WORKS.—On Wednesday afternoon last while a number of gas-stokers and others were in one of the bui of the Nine Elms Gasworks, at Vauxhall, the roof suddenly coll Five persons were buried beneath the *débris*, but were subseq rescued and taken to St. Thomas's Hospital.

## RWELL AND MERSEY JOINT COMMITTEE.

usual monthly meeting of this committee was held at the ces, Mosley Street, Manchester, on Monday, December 5th, hairman, Mr. Alderman J. Thompson, presiding.

SALFORD GETS ENERGETIC.

erk (Mr Hulton) stated that the chairman of the committee, ert, M.P., was in Preston at the beginning of last month, and d upon by Mr. Wright, solicitor, who represented a great f manufacturers during the passing of the Joint Committee's he drew Mr Hibbert's attention to a letter which had been by the Littleborough Dyeing Company from the Salford Town n the subject of river pollution and threatening to take pro- at the expiration of the two months' notice given under the of Rivers Prevention Act, 1876. Mr. Wright pointed out oint Committee had already given notice to the Littleborough ompany by circular, dated October 10th, 1892, calling their to part 3 of the Act, and requesting them within six months ch practicable and reasonable steps as might be necessary to low or render harmless any poisonous or noxious matter that esent turned into the river. Mr. Wright further stated that any were doing their best to carry out the best practicable nable available means to render harmless any poisonous or natter turned by them into the river, and he complained that hey had received notice from the Joint Rivers Committee em six months in which to carry out the necessary works, ey were perfectly willing to do, they were at the same time d by the Corporation of Salford with legal proceedings, as the two months' notice required by the Act of 1876 had Mr. Wright also said that manufacturers throughout the ere only too anxious to comply with the request of the Joint ee, but thought it most unfair and unjust that they should be d with legal proceedings by another authority within the same Mr. Hibbert informed Mr. Wright that the matter should be d by the Joint Committee, and in the meantime he directed Clerk) to see the Local Government Board and inquire what real circumstances of the case. Thereupon he (the Clerk) the Local Government Board's office and saw Mr. Adrian, e assistant secretaries, who told him that a letter dated 20th had been addressed to the Local Government Board by the erk of Salford. The letter came from the River Irwell Con- Committee of the Salford Corporation, and contained a full t of the grounds on which they were proceeding and the hy they were determined to enforce the penalties under the 76. That letter having been read to him, he suggested to an that the best course to pursue would be to send a copy of o the Joint Committee, in order that the Committee might opportunity of expressing an opinion upon it. A copy of the s sent to Mr. Hibbert, and Mr. Hibbert wrote in relation to it s:—"I consider the steps taken by the Corporation to be most able, and such as ought not to have been taken without consultation with our authority A deputation to the Local ent Board would perhaps be the best way of placing the of affairs before them."

THEIR ACTION CENSURED.

Chairman (Mr. Alderman Thompson) said this was a very t matter for the Committee to consider He agreed with Mr. that it was a very unwarrantable course for the Corporation of o take, and a very unfriendly one. He could quite understand e Committee had been remiss in its work there might have ne excuse for the action of Salford; but even under such nces it would only have been a simple act of courtesy to have e attention of the Committee to the non-fulfilment of their ut no one could accuse them of having been lax in the per- of their work; on the contrary, everyone acknowledged that essful results had followed the action they had taken. Under umstances the action of the Salford Corporation seemed to of simple defiance, and it was for the Committee to consider ously what course they would take. Instead of pursuing their friendly conditions as they had hitherto done, they would constant rivalry between one authority and another. They ve friction, irritation, and opposition. It was for the Com- o consider what action should be taken. He should have that the action of this Committee, which had been appointed later Act of Parliament, overrode the action of any authority d under the Act of 1876

. W. Killick said he thought very much credit was due to or having first taken action in this question of the pollution of ll; but he had read with care the account sent him of the f the action of the county borough of Salford against various of the river, and he did not find that the Corporation made any great progress in the good work in which they were engaged, and he thought that was due to a very considerable extent to the fact that the people—the local authorities and manufacturers—on the banks of the river thought that Salford was fighting for its own hand. He himself did not share that view; he thought they had fought for the good of the community, but that was not the feeling of the people against whom they proceeded. One of the main reasons why the Cheshire County Council supported the formation of the Joint Rivers Committee was that they felt it would be much better that the watershed should be treated as a whole, and that any action should be brought by the whole as against a part, and not, as in the case of Salford, by a part against a part. It was felt also that it would do away with the natural fear of the authorities that they might be unduly pressed upon, and obviate any chance of preferential treatment. Parliament listened to their prayer and created this Committee, and had since given them extended powers; and he believed it was owing to these facts that the public had changed their sentiment largely on this question of river pollution. He thought they were justified in saying that they were carrying the public with them to a larger extent than ever before. The Joint Committee, moreover, had not been idle. Many authorities had moved who were still before, and some of those who were moving had had their movement accelerated. In regard to river pollution from trades the Committee had not been idle. They had had two reports from Sir Henry Roscoe.

Mr Alderman Walmsley (Salford): Not two, only one.

Mr. Killick said he was under the impression they had had two, but in any case they had had one report from Sir Henry Roscoe, which had been sent to the manufacturers on the banks of the rivers. That report had been followed up by a letter stating that after six months from the time it was dated the Committee would take steps to compel all polluters to put a stop to their pollution. Now, under the Act of 1876 and the Act under which the Joint Committee came into being it was impossible for two authorities to act at the same time. In November, 1891, this question was brought before the Joint Committee and a resolution was passed to this effect, that while not wishing to take away the rights of any individual authority, it was thought that the Joint Committee were the best authority to take action against polluters of the rivers. This was obviously the case, for several reasons —(1) that everybody in the watershead was represented on it, (2) because it was much larger than any other authority in the district (for instance, Salford was only one-twelfth of the whole), and (3) that it would do away with all possibility of local jealousy. They were told that Salford had issued notices to certain manufacturers. It was easy to misunderstand each other, and he would be sorry to think that Salford in so doing had any other purpose than the common good; but he could not help thinking it would defeat the work of the Committee; it would raise up those jealousies they were anxious to allay, and tend to set the public against them, instead of enabling them to carry the public with them. He would venture to appeal to the representatives of Salford to withdraw those notices to manufacturers, so that this matter might terminate amicably, and the Committee go along as one united whole.

COMPLAINTS AS EXPLANATIONS.

Mr. Alderman Walmsley said the Chairman was the last man in the world whom he would have expected to speak as he had just done. The Chairman was usually so cautious and so mindful of the feelings of other people that never before had he heard him cast a reproach upon any individuals who were trying to do their duty with zeal and honesty. He was much obliged to Mr Killick for such a meed of recognition as that which he had given of the services that had been done in the past by the borough of Salford. Those services showed, at any rate, they had not been acting from any unworthy motives It would be within the memory of those gentlemen who were present when the inquiry was held at the Assize Courts that Mr. Hibbert on that occasion gave distinct assurance that the concurrent rights and powers of Salford should not be interfered with in any degree. Upon that basis Salford agreed to withdraw what they considered a just opposition to the proposals that were then being made They had faith in Mr. Hibbert's word, and how Mr Hibbert could possibly, consistent with the word previously given, write the note he had sent to the Clerk he did not know That being the case, and Salford having a right to act independently, he wanted to know where their offence was. They had offered on every possible occasion all the help they could give, but the interests of Salford were so important, especially with the prospect of the opening of the Ship Canal at the end of next year, that they could not consent to forego any of their rights They had also to complain that whereas certain manufacturers were prepared to comply with Salford's two months notice, the Joint Committee had upset the arrangement by offering six months They did not mean to abrogate any of their powers, nor to stay their hand. He did not say this in defiance of the Committee, but because, in his judgment the interests of the borough he represented warranted him in saying that. Reference had just been made by Mr. T. W. Killick to

SIR HENRY ROSCOE'S REPORT.

He asked them candidly what was it worth? He would ask them to send it broadcast throughout the country to any chemist or sanitarian and ask its value. They gave three hundred guineas for it, and it was not worth the paper it was printed on, for it contained nothing but what the Commission reported in 1868, on which the Act of 1876 was based. The report was called a preliminary report, and he was surprised they had not had that which it was supposed to be preliminary to. They had had nothing, and to say that because Sir Henry Roscoe pointed out to them that bleachers put in one kind of pollution, and dyers another, and paper makers another, and did not give you any standards or any advice, his report was one on which they or the public could take action was, in his opinion, perfectly idle; it was one of the weakest things that could have been given. In conclusion, Mr. Walmsley said the action of the Salford Corporation was dictated by the sole desire of benefiting the people whom they represented, and whose interests they would not refrain from promoting, whatever the opinion of this Committee.

Mr. V. K. Armitage said he thought Mr. Walmsley had somewhat misunderstood the position taken up by the Chairman and Mr. Killick with reference to the action of the Corporation of Salford. Nobody dreamt when the Joint Committee was formed there would be any attempt to deprive Salford or any other authority of its rights. What was thought was this, that this large Committee, representing the whole of the watershed, could bring the powers of the new Act or of the Rivers Pollution Prevention Act to bear with much less friction and occasion for jealousy than any one authority could by taking proceedings against another authority.

THE CRUX OF THE MATTER.

They did not find fault with Salford for urging in every way the prevention of river pollution; their complaint was that Salford should have acted as it had done after its representatives had sat on this Committee, and had been present at a meeting on the 2nd November of last year, when a resolution was passed declaring that, as two authorities could not take action for any offence at the same time, it was desirable that the Joint Committee be the authority to commence all future actions in the area over which they had jurisdiction, and that in the event of any authority wishing themselves to take proceedings, they be requested before doing so to communicate with this authority.

Mr. Groves (Salford): I think neither Mr. Alderman Walmsley nor myself was present at that meeting. That possibly explains our action.

A FEW SUGGESTIVE OBSERVATIONS.

Mr. Armitage said he was told that both those gentlemen were at the meeting. At all events that resolution was a part of the minutes, which were printed and sent to every member of the Committee, and not until last week did the members of the Committee learn that this thing was going on behind their backs. As to Sir Henry Roscoe's report, all he could say was this—he had sat there at every meeting of the Committee since the report was issued, and he never heard Mr. Alderman Walmsley nor Mr. Groves say one single syllable derogating from the value of that report. If Mr. Alderman Walmsley had a strong opinion about Sir Henry Roscoe's report, he should have brought the matter forward and given them an opportunity of questioning Sir Henry Roscoe upon it, and if it were considered that his recommendations were insufficient, they might have gone further and instructed him to follow that preliminary report with another and very much more effective one. So again, with regard to the circular letter giving six months' notice to offending people, he had been present at every meeting of the Committee since it was issued, and he had not heard any complaint that that was a wrong time to give. They were calling on traders in many instances to spend large sums of money, and he thought they would have set public opinion against them throughout the country if they had not allowed a reasonable time. If Mr. Walmesley had said, "I object to you giving six months' notice to this and that man; we have been at them for some time, and they are willing to take a month," an exception might have been made in those cases, and the work that Salford was going to do with difficulty the Joint Committee would have done with ease.

The Chairman said he fully agreed with what Mr. Armitage had said. He had no intention, in the remarks he made at the outset, of reflecting on any of his colleagues individually. He found from the printed memorandum of the meeting of the Committee of the 2nd November, 1891, that both Mr. Walmsley and Mr. Groves were present.

Dr. Hewitt joined in urging that it was expedient that only one authority should take action, and that that authority should be the Joint Committee. He also expressed his disagreement with Mr. Walmsley as to the value of Sir Henry Roscoe's report.

Mr. Killick moved, and Dr. Hewitt seconded, a resolution that the Clerk be instructed to intimate to the Local Government Board the views held by the Committee on this matter.

Mr. Groves assured the Committee that there had been no in on the part of Salford to act discourteously. They felt that the i confided to the care of the Salford Corporation were too g warrant them in effacing themselves or sacrificing their liberty o in the least degree.

The Chairman said no one wished Salford to efface herself, was there any desire to interfere with her liberty of action. thought Salford had treated the Committee with discourtesy consulting them before taking action. As for Sir Henry R report, he thought it had produced a great result.

DEPUTATION TO THE LOCAL GOVERNMENT BOARD.

Nine members voted for the resolution and two (Mr. Walmsl Mr. Groves) against it.

A resolution that a deputation wait upon the Local Gove Board was unanimously adopted.

It was further resolved that the consideration of the cases of H worth and Mottram be deferred until the next meeting; tha months' extension of time be given to the authorities of Boll Kearsley, and Nordon, Ashton-under-Lyne, and Hurst, and t Clerk be instructed to take proceedings against the Local B Audenshaw.

CHIEF INSPECTOR'S REPORT.

The Chief Inspector (Mr. Tatton) presented the following rep

*Norden Local Board.*—On the 17th ult. I visited the sewage works authority in company with the chairman, clerk, and surveyor to the Boar works, as I have previously reported to you, are inefficient, and do not suc deal with the sewage of the district; they consist of small tanks only, no pre is used, and there is no subsequent filtration of the effluent. It was sugges the tanks should be enlarged, filters made, and a precipitant used; and s visit I have received a letter from the clerk saying that a sub-committee b appointed to go thoroughly into the question and report to the Board as to practicable means of dealing with it. The extension of time granted authorities having expired in the cases of Bollington, Kearsley, Audenshaw, under-Lyne, Hurst, Hollingworth, and Mottram, it will be for your Comm consider whether a further entension should be granted. I beg to repor several cases as follows:—

*Bollington Local Board.*—In September last I reported to you on the se Bollington, also on the manufacturing pollutions in the district. Since t the manufacturers have been sent six months' notice in common with the o the watershed, and I understand that a resolution has been passed by th Board giving an engineer instructions to prepare a report and plans for deali the sewage.

*Kearsley Local Board.*—The outfall works have been commenced, and gress has been made; the excavation for the tanks has been got out, and t and concrete side walls are being built. These works will consist in the first of three precipitation tanks, but it will probably be necessary to suppleme by artificial filter beds, as the land at the disposal of the Board is insuffi land filtration.

*Audenshaw Local Board.*—This authority has bought land on the bank river Tame, but beyond this they have not made much progress with their Negotiations have been going on with Ashton, but these have fallen throug therefore see no reason why they should further delay the preparation of dealing with their sewage on their own land.

*Ashton-under-Lyne and Hurst Local Boards.*—These two authorities moting a joint bill in Parliament next session for powers to construct sewag The Parliamentary notice has been published in the papers, and a copy of t and sections has been deposited at this office.

*Mottram and Hollingworth Local Boards.*—A deputation from these aut met the consulting sub-committee at their meeting on Friday last with refe their position as regards the treatment of the sewage of their district. committee's report on the interview will be submitted to you.

I have to submit to you letters from the clerks to the Whitefield and M Local Boards. The Whitefield authority is delaying the preparation of a sch the treatment of the sewage of the Stand Lane district pending the decisio Local Government Board on the question of the amalgamation of this dist Radcliffe. The Moss Side authority have not yet received the sanction of t Government Board to their scheme, such sanction being, it is believed, pending the receipt by the Local Government Board of a memorial aga scheme. I think if some pressure were brought to bear on these two autho would tend to a more speedy solution of the questions in dispute.

On the motion of Mr. Armitage, seconded by Dr. Hewitt, decided to take proceedings at once against Whitefield. The intimated in regard to Moss Side that a deputation had waite morning on the Amalgamation Committee of the Manchester Co tion. He thought that under the circumstances the Committee have to give Moss Side a little more time.

The meeting then terminated.

## THE DURATION OF OUR COAL SUPPL

MR. C. M. Percy, of the Wigan and District Mining and Tec School, delivered an inaugural address at Huyton on M evening last, in connection with the system of technical instructio being arranged for that portion of the county. Mr Percy sai before proceeding to describe the principle of any mining applian desired to say a few words about coal and the coal industry. century ago the annual output of coal in the United Kingdom d exceed 50,000,000 tons, and the number of persons employed i mining would not be more than 200,000. The annual product coal in the United Kingdom for 1892 would not fall much sh 200,000,000 tons, and found employment at collieries for over 6

people. Two years ago the annual output was 182,000,000 tons. Their own great county of Lancashire was responsible for one-eighth of the amount of coal raised and for one-eighth of the number of persons employed. From particulars which he had attained during the present year he found that nearly 80,000 people were employed in mining in the county of Lancashire, of whom nearly 70,000 belonged to the administrative county, over which the County Council had jurisdiction. He had made a calculation that if all the 200,000,000 tons of coal raised in a year in the United Kingdom, which he had taken as the probable output for 1892, was consumed in the generation of steam, and all that steam used in the working of engines, it represented a continuous horse-power, under present conditions, day and night all the year round, of 40,000,000; and if they ever arrived at a time when the whole power possessed by coal could be converted into mechanical work, it represented a continuous horse-power of 400,000,000. He estimated that nearly one-half of all this coal, representing the employment of 300,000 colliery workers, was absolutely dependent on foreign trade, which meant that if from any cause our foreign trade ceased, the means of employment for our colliery workers in this country would be reduced by one-half. It was not necessary in any mining district, or, indeed, in any part of the country, to argue as to the importance of the coal-mining industry to England. Without that industry England would cease to exist as an industrial nation, and the teeming millions of their population would have to seek homes and occupations elsewhere. That such a time would arrive was, in his opinion, inevitable; but for a few centuries, at any rate, coal in England would be a plentiful commodity, and it was their duty as patriotic citizens to do everything in their power for the improvement of the industry itself and the elevation of the persons employed therein. It had been said that there need be no anxiety about England's stores of coal; the human mind would surely invent some other source of power when coal should be exhausted, and that electricity would then be the source of power. To transmit power was one thing, and in that no doubt electricity would in the future occupy an important and useful position; to generate power was altogether another thing; for that purpose neither electricity nor anything else could compete. Coal held the field and reigned supreme.

## SOCIETY OF CHEMICAL INDUSTRY.

### LONDON SECTION.

THE second meeting of this section took place on Monday, the 5th December, Mr. William Thorp, B.Sc., president in the chair. The first paper read was by Messrs. Cross and Bevan on the production of acetic acid from carbohydrates. This paper contains figures giving the maximum amount of acetic acid which they had obtained from various carbohydrates, as jute, &c. The latter part of Mr. Cross's paper was industrially interesting. He showed that the waste liquor from esparto boiling contained 5 or 6% of the raw grass weight of sodium acetate, and that on evaporating down, igniting the residue and lixiviating, 15 out of the 16% in the ignited ash could readily be obtained, this of course being an important matter to esparto boilers carrying on operations close to acetic acid makers, as the latter could use the calcined residue to neutralize their acetic liquors, and at the same time have the benefit of the sodium acetate present in the residue.

The second paper was by Messrs. Cross and Bevan, entitled, Electrolytic Soda and Chlorine: the present aspects of the question.

Mr. Bevan described two processes, the Le Sueur and the Greenwood, and as to cost, the following he considers to be about correct:—

COST OF POWER.

| | | | | |
|---|---|---|---|---|
| Coal, 2,400 H.P. × 2½ lbs. × 24 = 64 tons at 10s.. | | £32 | 0 | 0 |
| Labour, 8 day and 8 night men at 30s. | | 4 | 0 | 0 |
| Depreciation 10% for 300 days on Engines ... | £10,000 | | | |
| ,, ,, Boilers ..... | 7,000 | | | |
| | £17,000 | 5 | 14 | 0 |
| Oil, waste, &c. | | 1 | 0 | 0 |
| | | £42 | 14 | 0 |

COST OF PRODUCTION.

| | | | | |
|---|---|---|---|---|
| 18 tons salt at 12s. | | £10 | 16 | 0 |
| 12 ,, lime ,, | | 7 | 4 | 0 |
| Power at ¼d., 2,400 × 24 = 57,600 H.P.H. | | 60 | 0 | 0 |
| Labour | | 10 | 0 | 0 |
| Depreciation at 10% on electrolysers ..... | £12,000 | | | |
| ,, ,, Dynamos ..... | 8,000 | | | |
| ,, ,, tanks, buildings, pumps, &c. ..... | 10,000 | 10 | 0 | 0 |
| | £30,000 | | | |
| Superintendence | | 1 | 0 | 0 |
| General expenses | | 4 | 0 | 0 |
| Casks, Packages | | 18 | 0 | 0 |
| | | £121 | 0 | 0 |

SELLING PRICE OF PRODUCTS.

| | | | | |
|---|---|---|---|---|
| 22·43 tons bleach (37%) at £7 10 0 | £168 | 4 | 6 | |
| 9·378 ,, caustic soda at 12 0 0 | 112 | 10 | 0 | |
| | £280 | 15 | 3 | |
| 22·43 tons bleach at £7 10 0 | £168 | 4 | 6 | |
| 12·46 ,, ash at 5 15 0 | 71 | 9 | 0 | |
| | £239 | 13 | 6 | |

The discussion of this paper produced some interesting remarks, both wise and unwise. Most of the remarks showed a disbelief in the price put down for caustic as caustic *per se*, for the alkalinity of the electrolysed solution is equal to 10% NaHO, and carbonic acid has to be led through this solution to convert the NaHO into sodium bicarbonate so as to separate it from the common salt which has to be returned to the electrolysers. The cost for carbonic acid does not appear, but this can be produced very cheaply. Mr. Bevan stated that there is a works in America producing three tons bleach per day by the Le Sueur process, so that the disbelief shown by some members as to the economical production of this substance were unfounded. He also referred to the Hermite electro bleaching process, describing it as one of the best methods at present extant, and that it was being used on the continent on a scale equal to a production of 3,000 tons bleach per week. Mr. Bevan also explained why 4½ volts were used as the electrical pressure, while about 2 volts would be enough. This he put down as the more rapid production of chlorine per unit of plant, so that it became in the end more economical to use 50% more energy than absolutely necessary to get a fair yield of bleach or chlorine for the plant used.

### MANCHESTER SECTION.

On Friday, 2nd December, the usual monthly meeting of this section was held at the Victoria Hotel. The chair was taken by Dr. Schunck. Dr. Carl Otto Weber read a paper on cop dyeing, in which he dealt elaborately with the various aspects of what he described as this latest and very important branch of textile dyeing. By way of introduction Dr. Weber showed that the high importance of cop-dyeing rested upon the fact that the dyeing of the fibres is performed after the completion of the spinning operations, when the yarns subsequently to be transferred to the shuttle in the loom are obtained in the shape of cops and directly dyed in that form, thus doing away with the wasteful operations of reeling the cops into hanks, dyeing them in that state, and then winding them back into pirns. The saving effected in this manner he estimated at from 10 to 14 per cent. according to the counts of the yarns. He further showed that cop dyeing did not enter into competition with the dyeing of loose cotton for the manufacture of mixed yarns (vigogne); but he anticipated that it would considerably influence hank dyeing and generally the manufacture of multi-coloured cotton and union piece goods, such as Oxfords, ginghams, cambrics, handkerchiefs, satteens, linings, and certain classes of half-woollen dress materials. He described the mechanical principles to be observed in the construction of cop dyeing machines, as illustrated by the mechanical conditions under which absolutely perfect impregnation with, and circulation of, the liquids (dye-baths) could be obtained in cops, remarking that all influences tending to interfere with the particular build of the cops ought to be carefully guarded against. The second part of the paper dealt with the cop dyeing machines of the present, which were critically reviewed from the point of view of five fundamental principles. A number of cops dyed in Crippin and Young's machine were produced, and the lecturer drew special attention to indigo dyed cops, the beauty and evenness of shade of which, he said, defied even the best results obtained in the hank. With regard to the practice of cop dyeing, Dr. Weber gave a description of the methods to be employed in dyeing cops with benzidine dyes, basic and acid mordant dyes, vat dyes, and developed and pigment dyes.

## A POINT OF PATENT LAW.

AN appeal case was decided recently, Mills *v.* Carson and another, the importance of which may be very easily overlooked. Briefly stated, the facts seem very simple. In 1887 Mr. Notley took out a patent for a safety lamp burner. He granted a sole licence to Messrs. Carson to manufacture, the consideration being the sum of £100. per annum for the remainder of the term of years then unexpired in the patent. On June 7th, 1889, Notley absolutely assigned to the plaintiff Mills the yearly sums of £100. and notice of this assignment was given to the

defendants. At the end of the fourth year—namely, in June, 1891—a fee of £50. became payable under the Patents Act, and this sum not being paid the patent lapsed An action was brought in the Mayor's Court to recover he £50 payable on January 1st, 1893, and the defendants contended (1) that they were only liable to pay the instalments under the deed as long as the patent existed; and (2) that if that were not so, the Court would imply a covenant in the deed that the patentee would pay the necessary fees to keep alive the patent. The Recorder held that the defendants were liable and gave judgment for the plaintiff The Divisional Court affirmed this judgment. The defendants by leave appealed. It appears to the lay mind that the original intention of Notley and Carson was that Notley should keep the patent alive. That, in fact, if he did not, no consideration would be given for the £100 per annum which was paid in order that Carson might have the exclusive right to make the burner. This right, of course, lapsed the moment the patent died. Law, however, is not always the same as justice, and the Court of Appeal has decided that although there is no longer any patent, and they no longer possess the exclusive right of manufacture, Mr. Carson and his partner must continue to pay £100 per annum to Mr. Mill as Notley's assignee. In the first place, the Court was not disposed to regard the failure to pay the patent fee as a breach of covenant at all, but even if it were—and this is the point to which we wish to direct, says the *Engineer*, the particular attention of our readers—"yet the breach of that covenant did not give rise to any condition in absolvence of what the defendants had to pay. It was an independent covenant altogether, and all that it would give was a right of action in respect of the breach, which might be the subject of a counter-claim. In the present case no counter-claim has been made, and the defendants were not absolved from the payment of these sums." It will be understood from this that under all like conditions the patentee must covenant under his agreement to keep up the patent. If he do not, the assignee or renters of the patent will alone be the sufferers, and their sole remedy will consist in bringing a tedious and expensive action by way of counter-claim for damages The decision of the Master of the Rolls is more instructive than satisfactory.

## THE QUALITY OF LONDON GAS.

THE quality of the gas supplied to the city of London for the week ending November 19th, 1892, was on the whole good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed three deficiencies in illuminating power, one against the Commercial Gas Company, and two against the South Metropolitan Gas Company. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

| Company. | No. of districts tested | Illuminating power (in stand. sperm candles) Mean average. | Sulphur. Grains in 100 cb. ft. Mean average. | Ammonia. Grains in 100 cb. ft. Mean average. | Sulphuretted hydrogen. |
|---|---|---|---|---|---|
| Gas Light and Coke Co. | 14 | 16·45 | 12·21 | 0·26 | Nil. |
| South Metropolitan Gas Co. ... ... ..... | 6 | 16·40 | 10·91 | 0·78 | Nil. |
| Commercial Gas Co. .. | 2 | 16 25 | 8·70 | 0·05 | Nil. |

For the week ending Nov. 26th, fewer cases of deficient lighting power are returned, two against the Gas Light and Coke Company and Commercial Gas Company respectively, and three against the South Metropolitan Gas Company. The mean average tests were:—

| Company. | No. of districts tested. | Illuminating power (in stand. sperm candles) Mean average | Sulphur. Grains in 100 cb. ft. Mean average. | Ammonia. Grains in 100 cb ft. Mean average. | Sulphuretted hydrogen. |
|---|---|---|---|---|---|
| Gas Light and Coke Co | 14 | 16·31 | 11 82 | 0·27 | Nil. |
| South Metropolitan Gas Co .. ..... ... | 6 | 16·30 | 12·20 | 0·55 | Nil. |
| Commercial Gas Co. .. | 2 | 16·20 | 8·60 | 0·05 | Nil. |

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days.

Illicit Distilling.—At Keighley on Tuesday last week two men named Briggs and Riley were fined £330. and £140. respectively for the illicit manufacture of spirits.

# Legal Intelligence.

## HIGH COURT OF JUSTICE.

### CHANCERY DIVISION.

(*Before Mr. Justice Romer*).

Paine *v.* Thompson.

An application was made on 14th ult., in connection with this case in the above named Court. The plaintiffs are Augustus G. Paine, William Mather, M P., and another, and the defendants Messrs Thompson and Van Gelder. The action is brought by the plaintiffs against the defendants to obtain damages, and also for an injunction to restrain them from infringing the plaintiff's patent known as the Cyclone Dust Collector.

Mr. Baker (for the defendants) applied for an order directing that an assessor should be appointed to assist the judge in the trial. Counsel pointed out that under the 28th section of the Patents Act it was laid down that in any action or proceeding for the infringement or revocation of a patent, on the application of either party the Court might, if it thought fit, call in the aid of an assessor, specially qualified, to hear and determine the action with the assistance of such assessor. The particular machine in this case, counsel said, was one used in flour mills for separating fine from coarse flour, and a great number of machine models would be brought before his lordship by both sides. Several experts would also be called, and he was instructed that it was advisable to have an assessor specially qualified to see that the machines were made as they purported to be, and to ascertain how they worked, in order that the matter might be placed properly before his lordship. As to who the assessor should be, that was a matter which could be arranged subsequently.

Mr. Fletcher Moulton, Q.C. (who with Mr. Clare appeared for the plaintiffs) said the best assessor his lordship could have would be his lordship himself; for if it was a question of dust collecting, anybody who had to occupy that Court ought to be an authority on dust collectors.

Mr Baker: But not on the question of separating the coarse from the fine.

Mr. Moulton remarked that it seemed to be imperative that an assessor should be appointed, if either party desired it. He thought, however, when the case actually came on for trial, that neither party would press for an assessor. The order might therefore go now, the parties could agree on an assessor, and then if they liked to drop it they could do so. That was the best way.

Mr. Justice Romer said it appeared to him that under the section either party had an absolute right to call for an assessor if they thought it necessary. He would therefore order the trial to take place with an assessor to assist the Judge. Would the parties be able to agree on some gentleman?

Mr Baker: I should think so; or else we can place before your lordship two or three names.

Mr. Moulton: Of course if the parties agree to drop the assessor they need not act on that order.

Mr. Justice Romer: Personally, in some of these patent cases, I think an assessor is advantageous. Of course I cannot tell in this particular case whether it is likely to be advantageous or not.

His Lordship made an order for the trial to take place with an assessor, fixing December 12th for the hearing of the action.

### QUEEN'S BENCH DIVISION.

(*Before Mr. Justice Charles, without a Jury*).

Bailey and Another *v.* Fox.

The plaintiffs in this case were, first, Mr Sanford, who owned the Nynehead estate, Somersetshire, and the other plaintiff, Mr. Bailey, was a farmer, who rented some of this land. The defendants, Messrs. Fox, were woollen manufacturers, who had mills and dye-works upon the river Tone, which ran through the estate. The plaintiffs complained that by turning the refuse of their dye-works and mills into the river they had polluted it, and the consequences of this were that cattle which drank at the stream became sick and disordered, and some of them died; that the river had become unfit to be used for fishing, boating, and bathing; and the enjoyment by Mr. Sanford of his mansion house, park, and land had become deteriorated. Under these circumstances plaintiffs claimed to recover compensation for what had been done. and an injunction to restrain the defendants from doing it in future. The defendants by their pleadings denied that they had poisoned the stream; and, in the alternative, they set up a prescriptive right to use the stream in connection with their mills and works; and they also alleged that in 1886 Mr. Sanford gave them verbal leave and licence so to use the stream. To this it was replied that permission to use the river was given only upon condition that the refuse from the works should be clarified before it was turned into the

river, a condition which had not been complied with. Another contention in the case was upon the question whether any mischief which had been produced had been caused by a weir which had been erected by Mr. Sanford down stream. A great deal of evidence was laid before his lordship as to the facts of the case, and by scientific witnesses as to the consequences that flowed from them. There was also a question whether the Rivers Pollution Act would not prevent any prescription such as that claimed by the defendants being established.—The hearing of the case occupied nine days; and upon the conclusion of the argument judgment was deferred.

# Reports of Companies.

## THE LIVERPOOL NITRATE CO., LD.

The annual meeting of the Liverpool Nitrate Company was held at the Law Association Rooms, Liverpool, last week, Colonel North presiding. In proposing the adoption of the printed report the chairman referred to the favourable position of the company as shown by the statement of accounts, which showed a profit of £25,871. on a capital of £110,000. After paying the dividend of 7½ per cent. they had claims against the Chilian Government in respect of losses by riot of 123,443 dollars. These claims would be paid in a very short time, so that the company were in a good position financially. The Liverpool Nitrate Company had been most fortunate. While other works had made a loss on their sales they had made a profit. They had now got a combination through which they could sell at a profit, and as far as the Board of Directors were concerned they were very well pleased with what had been done. Mr. Robert Harvey seconded, and reminded the meeting that the 7½ per cent. would make 12½ per cent. on the year's working, a dividend in excess of that of any other nitrate company. The motion was carried unanimously. Mr. F. W. Reynolds was re-elected a director, and it was resolved to pay the seven directors £1,500. a year, commencing on 1st July last.

## THE COLORADO NITRATE CO., LD.

At the meeting of the Colorado Nitrate Company last week, Colonel North, in moving the adoption of the report, moved also the declaration of a dividend of 3 per cent., amounting to £4,800., and in doing so said he thought the directors took a right view. They could have given more. They had an accumulated stock of soda and a claim against the Chilian Government of 59,936 dollars, and they had a balance to carry forward of £7,803. They would agree with him that there was a very satisfactory promise for the future.—Mr. Harvey seconded the adoption of the report, and said the directors had never received a farthing in fees. He had been at these works before Colonel North, and he was in hopes they would have good dividends in the future.—The motion was carried unanimously.—Mr. W. J. Lockett was re-elected a director, and Messrs. Harmood Banner and Sons were reappointed auditors for this as well as for the other companies.

## THE PRIMITIVA NITRATE CO., LD.

Colonel North, on taking the chair at the meeting of the Primitiva Company, also held at Liverpool last week, said no one was more disappointed than himself as regarded the year's workings. They had been most unfortunate. They had shared in the combination throughout, although they were the largest nitrate works. They had kept back their nitrate stocks, and they found, when they were sent to market, instead of getting £9. 5s. they had to be sold at prices under £8, and this took away all their profits. The manager had also been unfortunate in his experiments. He (Colonel North), however, still believed that there were good prospects in Primitiva, seeing especially the ground they had to work. They had started on too small a capital. Since the report had been issued they had been doing better. They were all satisfied that the combination was a proper thing. The motion was seconded by Mr. John Waite and carried unanimously, and Mr. Hebblethwaite was re-elected a director.

Royal Society Medals.—Amongst those gentlemen who were honoured by the receipt of the medal of the Royal Society, at the anniversary of that society on Wednesday last, were the Rev. Professor Pritchard, F.R.S., who received the society's medal for his work on Photometry and Stellar Parallax, and Professor F. M. Raoult, who was accorded the Davy Medal, for his researches on the freezing points and vapour pressures of solutions.


# NOTICES.

## LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of
THE CHEMICAL TRADE JOURNAL
From
MR. JOHN HEYWOOD,
2, Amen Corner,
Paternoster Row, E.C.,
On usual trade terms.

## FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed* Money Order is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country


# Selected Correspondence.

## SCOTTISH OIL TRADE.

(*To the Editor of the Glasgow Herald*).

Sir.—"Commonsense" asks why didn't the Scotch oil trade push the matter of higher flash point long ago? The answer is that they did push it, but the people did not take an interest in the matter. Besides, it was convenient for the Scotch as well as the Americans to have a low flash. Why should the Scotch trade be expected to fight the battle against their own convenience and interest? I think they should be thanked for having done so much. Now, no doubt it would suit the Scotch trade to get the higher flash made law, but we cannot trust them yet to fight the battle. They have their arrangements to make with the Americans, and we cannot expect them to sacrifice their own interests in their present difficulties to save the lives of people who cannot be got to take any interest in their own lives. The matter of 300 English lives per year is too much to leave to the mercy of conflicting trade interests. Let the people back up the Government in supporting the Inflammable Liquids 1891 Bill, and not leave it to be strangled by trade selfishness, and at the same time get the safety flash-point raised to 100° or 110° F.—I am, etc.

Commonsense No. 2.

# Correspondence.

*** *We do not hold ourselves responsible for the opinions expressed by our correspondents.*

## *ANSWERS TO CORRESPONDENTS.*

H. N. W.—Thanks for contribution, which is safely to hand.
T. A.—12s. 6d. per annum, post free, from any date.
V. and Sons.—Both copies were sent all right.
H. C. F.—We trust the instructions we sent assisted you satisfactorily in your difficulty.
E. S.—We shall be pleased to hear from you further.
L. J. and Son.—We still wait reply to our last.
Anti-Rust.—A weak solution of collodion in spirit is frequently used, and is about the best thing for your particular purpose.
A. N. C.—(1) About 170° Tw. (2) No. It amounts to about 0·01 per cent.

# Trade Notes.

A Metal Cleaning Fluid.—A liquid compound for cleaning gold, silver, electroplate, and nickel, is prepared by mixing common washing soda with prepared chalk, liquid ammonia and water.

Swedish Exports.—According to the report of H.M.S. Consul, Sir F. R. Plunkett, the exports of matches and iron ore from Stockholm are on the increase, while there has been a great diminution in the amount of mechanical wood pulp exported.

Discolouration of Silk by Damp.—In order to prevent the discolouration of silk goods when exposed to damp at a low temperature, Mr. E. B. Truman suggests the addition of perchloride of mercury to the dye-bath in which the silken goods are dyed.

Sweet-smelling Size.—It has been proposed to deodorise glue size and gelatine by the use of antiseptics and aromatic odours, subsequent to the process of manufacture. Nitrobenzene, eucalyptus, cloves, musk, ambergris, camphor and benzoin are among the various substances which are specified for the purpose.

Explosion of a Tar Tank at Bradford.—On Saturday afternoon last at the Valley Road Gas works, a tar tank situated at the east end of the retort house blew up with terrific force, wrecking the purifiers on the other side of the yard and demolishing the washouse. The men who were at work on the spot were buried in the ruins. They were quickly extricated from the place and removed to the infirmary. The damage to the plant was very extensive

Explosion at Todmorden Gas Works.—An explosion occurred at the works of the Todmorden Gas Company, Millwood, last week. In a small room between the meter-house and the mechanics' shop were two ammonia stills, and one of these exploded. The still was carried bodily through the roof, alighting on a piece of vacant land. The brick wall dividing the room from the mechanics' shop was blown clean away, a little engine being smashed to atoms and the mechanics' place made a complete wreck.

Devulcanising Rubber —The rubber is first boiled with an alkaline carbonate, hydrate or sulphite, then washed and treated with hydrochloric acid and iron, containing a lot of combined carbon. This mixture is allowed to stand in a dark place until all action has ceased. The rubber is then washed and boiled gently for about four hours, in a solution of caustic soda, again washed and pressed. The remainder of the process, which is patented, consists in dissolving the rubber in a suitable solvent passing it through a masticator and spreading out in thin layers.

Manufacturing Potassium Carbonate.—An improved process has been devised by A. Dupré for the preparation of potassium carbonate from sulphate of potassium by treating the latter with sodium carbonate, heating the solution to about 75° C. The insoluble potassium sodium sulphate is separated by filtration and the solution of potassium carbonate evaporated. The potassium sodium sulphate is treated with potassium chloride, thereby obtaining potassium sulphate which may be used over again and salt as a bye-product.

Electroplated Lace —Silver lace and embroidery, as is well known, is usually made from fine silver wire, but a process has been recently devised in which the lace is first immersed in a solution which saturates the lace, and sets hard in a short space of time. The lace can then be plated with gold or silver by the usual methods of electro deposition. At present only the cheaper kinds of lace are being treated, but it is thought that ere long the process will be applied to finer laces for different purposes.

Liquid $CO_2$ in France —Liquid carbonic acid is being made in France near Hermes by absorbing the carbon dioxide given off from burning coke in potassium carbonate. The bi-carbonate of potassium so formed is decomposed by boiling, and the carbon dioxide evolved stored in gas-holders. It is then dried and compressed up to a pressure of 70 atmospheres in wrought-iron bottles in the usual way. The works are at present producing 300 kilogrammes of acid a day, having facilities for producing up to 1,000 kilogrammes a day. The acid is sold in Paris at sixpence per kilogramme.

Chemical Manufacturers' Scales and Weights.—Correspondence has recently passed between the Chamber and the Manchester Corporation Office of Weights and Measures with regard to the inspection of scales and weights used by chemical manufacturers solely for mixing proportional quantities of raw materials in process of manufacture. These are subject, by corrosive action, to become inaccurate, though not sufficiently so to unfit them for this particular purpose. In a final reply the Committee of Weights and Measures has informed the Chamber that scales and weights used only in the manner described will not be considered as being in use for trade within the meaning of the Weights and Measures Act, 1878, if they are kept in a separate and distinct place, apart from those used for trade purposes.

Fatal Fire in a Sicilian Sulphur Mine.—A serious fire has broken out in the works of the sulphur mines in Lucia, in the province of Girgenti. A fire has been smouldering in the remoter parts of the mines for some years, but had been kept in check by means of barriers, and prevented from spreading to the section which was being worked. On Friday last, however, the flames broke through the barriers, and dense volumes of suffocating fumes rolled through the galleries, extinguishing all the lights. The men at work immediately fled across to the workshops, but before reaching a place of safety five of them were overcome by fumes and asphyxiated, whilst ten others sustained various injuries in their headlong flight through the mine. The fire has now been isolated by the erection of fresh barriers, and the men would probably resume work on Monday last. It is as yet uncertain whether any other men still remain in the galleries.

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

The benzol market keeps steady at about 1s. 6d. for 90's and 1s. 3d. for 50/90's. Anthracene prices cannot be quoted, all the large makes still being held out of the market. The future of this market depends on the question as to who will hold out the longest—consumers or producers. If the latter will only be reasonable in their demands they will have no cause to repent the steps they have taken. All other tar products without change.

The sulphate of ammonia market though remaining perfectly steady has assumed a quieter aspect. It cannot, however, be said that there is no business passing, because buyers can be found for every parcel offering, but competition is not keen. For the time of the year there are very few parcels on the market, a condition of things which augurs well for the maintenance of values and will defeat the attempts of dealers to force prices down. The principal business is at £10. 2s. 6d. f.o b. Hull and Liverpool, and perhaps £10. 1s. 3d. at Leith. London values, both Beckton and outside makes, may be quoted as £10. 2s. 6d.

The available supplies of nitrate of soda up to the end of the manure season have again decreased during the month, and as the January shipments are arranged to be about the same as last, it looks very much like a great scarcity of this article during the early months of next year.

## REPORT ON MANURE MATERIAL.

The market remains very quiet in all departments and without any appreciable alteration in values.

Florida, 75/80%, phosphate rock offers at 8d. per unit, in cargoes c.i.f. to United Kingdom, and it is reported that something less has been accepted for Continent. Sellers of hot air dried Coosaw River rock are again asking 6½d. per unit, but we have not heard of any business at the advance. Nearest value of Peace River rock is probably 6½d. to 6¾d. per unit. For River Plate bone ash £2. 17s. 6d. per ton, on 70%, nett Hamburg terms, has been accepted, and that is now the full value.

There are sellers of River Plate cargoes of bones at £4. 2s. 6d. for United Kingdom. Further sales of crushed Kurrachee bones have been made at £4. ex quay Liverpool, and there are sellers at the price for shipment and for shortly due. Nothing further reported in Bombay bone meal to arrive, but £4. 2s. 6d. ex quay Liverpool would be accepted. On spot several parcels have changed hands at £4. 1s. 3d. ex quay. Much higher prices are required ex store.

Nitrate of soda is very quiet in all positions. On spot the quotation for inferior quality is 8s. 10½d. per cwt., for good 9s., and for fine 9s. 1½d. per cwt. Due cargoes are now worth barely 9s. for ordinary test, say 9s. 1½d. for refined. September shipments are quoted 9s. 3d., and October-November 9s. 4½d. per cwt, but we do not hear of business passing at the prices.

There is nothing special to report in other material, except sale of Rio Grande manure meal, at Birkenhead, at 7s. 6d. per unit of ammonia, and 8d. per unit phosphates.

## MISCELLANEOUS CHEMICAL MARKET.

The demand for the staple products of the alkali trade continues fairly good all round. In soda ash the contest still continues keen between various sellers for business in 1893, but spot prices have undergone very little alteration. Spot quotations are 1¼d. to 1⅜d. per degree. The tendency in alkali generally, however, is in buyers' favour. The nominal quotations for caustic soda remain as heretofore, viz.: F.o.b. Tyne, 77%, £11. 15s ; f.o.b. Liverpool, 74%, £11. 5s. ; 70%, £10. 5s. ; 60%, £9 2s. 6d. ; cream, 60%, £8. 17s. 6d , 10 ton lots and upwards. For bleaching powder the demand is steady and price remains firm at £7. 10s. nett f.o.r. makers' works. Chlorate of potash and soda are still scarce for early delivery. Sulphate of copper is firmer in price, and more business doing. In recovered sulphur there is no improvement, £4. 10s. to £4. 12s. 6d. nett f.o.r. makers' works, being nearest value. Vitriol and muriatic acids are without change in position. Brown acetate of lime steady at £6. to £6. 5s. per ton. Other acetates in fair demand and without change in price. White powdered arsenic firm and in good request ; £12. 10s. nett at Garston. Carbolic crystals have improved in value, and there is better demand,

40° 5¼d. to 5½d. nett per lb. In potash, caustic and ood business continues to be done, both prompt and there is no material alteration in values.

## THE METAL MARKETS.

I, WEDNESDAY.—Pig iron dull. Scotch warrants closed ash. Middlesbrough 37s. 2d. cash, and Hematite 46s. 3d. er weaker: Chili bars, G.O.B.'s and G.M.B.'s closed at sh, and £47. 13s. 9d. to £47. 12s. 6d., three months. raits closed at £90. 2s. 6d. to £90. 12s. 6d. cash, and o. 10s. three months. Australian, £92 cash. English Lead dull: Spanish, £10. to £10. 1s. 3d. English, to £10. 7s. 6d. Silesian spelter: Ordinary, £18 12s. ilver: First hands, £6. 10s., second hands, £6. 8s. es quiet; Cape, $1\frac{11}{16}$ to $1\frac{13}{16}$; Copiapo, 2⅜ to 2½; to 3⅜; Mason and Barry, 3¼ to 3⅜; Rio Tinto, $16\frac{1}{16}$ harsis, $4\frac{11}{16}$ to $4\frac{13}{16}$; Namaqua, $\frac{13}{16}$ to $\frac{15}{16}$; Panulcillo,

RHAMPTON, WEDNESDAY.—On 'Change this afternoon usiness was transacted, but the position generally was worse on the week. Hematites are in quiet demand. forge sorts are quoted 58s. to 59s; foundry numbers 1, 2 quoted 60s, 61s., and 62s respectively; Northamptons wards, Derbyshires 45s., and Lincolns 48s., at works. gles quiet at £7. to £7. 2s. 6d.; galvanised doubles, £11. and mill coal, 8s. to 8s 6d. or 9s.

W, WEDNESDAY.—Market firm, with small business. at 41s. 9d. cash, also at 41s. 11d. and 41s. 11½d. one ing with buyers at 41s. 9d. cash, and 41s. 11½d. one ers ask ½d. more. Middlesbrough closes with buyers at ash; sellers ask 37s. 4½d. Hematite closes with buyers ; sellers ask 46s. 3d.

## RPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

Palm oil continues very firm Spot business is rather quiet nited supplies, but business for arrivals has been active. th £24. 15s. per ton, though £26. has been paid in some a £22. 15s., all transit. Olive remains unchanged, though slight tendency towards an increased figure for arrivals. verpool makes do not improve in price and have ruled all slightly easier prices, namely, 19s. to 19s. 6d per cwt. in . Cottonseed after being very firm at 18s. 6d. has now 19s. per cwt. for Liverpool refined, the tone of the market er generally. Castor oil: Good seconds Calcutta has been d. per lb., which price is likely to be maintained till further rst pressure French continues steady at $2\frac{11}{16}$d. per lb. In has been more enquiry, and prices are firm at 25s. to 27s. American, and 30s. to 31s. for South. Resin, common, shortening of forward prices is now quoted from 4s. to cwt.; other qualities continue firm. Spirits of Turpentine 22s. 9d. all the week, but they do not seem very firm at on, business passing being very poor. Petroleum has a enquiry. American 5¼d. to 6¼d., according to quality. ned 4½d. to 4⅝d. per gallon.

RS unaltered. Ochres: Oxfordshire, common, £10., 12., best, £15.; Derbyshire, common, 40s., medium, os. Welsh, best, 70s., seconds, 50s., and common, 18s.; nshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. red lead, and oxide of zinc unchanged. Venetian red, £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide mmon, £6.; medium, £10.; finest, £20. Zinc oxide, .

## E LIVERPOOL MINERAL MARKET.

continue firm. Manganese: Arrivals are nil, whilst the strong. Stocks were reduced to practically nothing, and re slow, chiefly owing to the usual falling off of productions pproaches. Borate, 7d. per lb.; sulphate, £21. 10s.; 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. raw lump) is more enquired for; raw ground £6. 10s., and 2. 10s. Bauxite (Irish Hill brand) continues very brisk, r export foreign, and prices are firm; lump 20s., seconds 16s., and thirds 12s. French chalk: Arrivals continue slight, whilst demand is brisk, and prices are firm. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump, scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland easy. Santander and manganiferous quiet. Emerystone: Best quality firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth continues quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal is much sought after, and prices are firm. Chrome ore continues in good request, and prices firm. Antimony ore steady at £12., and metal £43. to £44. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in better demand. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

## TYNE CHEMICAL REPORT.

TUESDAY.

In the chemical trade bleaching powder is much firmer and is quoted £7. 10s per ton net. Caustic soda quiet. Sulphur steady at £4. 15s. net.

Bleaching powder, softs, £7. 10s. per ton nett; hards, £7. 15s. per ton; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £4. 17s. 6d. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £4. per ton, 140° Tw., £4. 7s. 6d. per ton; soda crystals, in casks, £2. 15s. per ton gross weight, in 2 cwt. bags, £2. 15s. per ton nett weight; chlorate of potash, 9d. per lb. less 6%; pearl hardening, £3. 10s. per ton nett; pure white sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta crystals, £19. per ton net; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; hydrate of barium, £11. per ton.

South Durham salt firm at 10s. 1d. per ton f.o.b. Tees.

Coals: There is practically no alteration in prices, and the demand for prompt is only quiet. Best Northumbrian steam 9s. per ton. Small steam steady at 4s. per ton. Gas coal in full demand, at 7s. 6d. to 8s. 6d. per ton, according to position of colliery. Coke steady at 15s. 6d. to 16s. per ton.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

There has been rather a weaker feeling in chlorate of potash and in caustic sodas, although the old quotations still stand. With regard to the latter there is a less confident outlook, and the expectation of a drop is amongst the prospects for the new year. Contracts are said to have been made forward at a reduction to foreign customers, while at home the buying ahead is accompanied by the reduction clause, which is all in favour of purchasers. The position of bleaching powder is at least maintained, and the reports from Tyneside are inclined to firmness.

In mineral oils and paraffins there is no very marked new feature, deliveries continuing pretty brisk at the lowered prices. Scale and wax are perhaps not so rapidly carried off, but on the other hand makers' stocks have been considerably reduced, and on that account the prices have not further suffered.

Sulphate of ammonia has been the subject of somewhat conflicting reports, but it is certain that there has been no improvement in this market, the feeling, indeed, leaning if anything to the weak side again with prompt Leith no higher than £10. 1s. 3d. to £10. 2s. 6d.

Chief prices current are:—Soda crystals, £2. 15s. nett Tyne; alum in lump, £5. 10s., nett Glasgow; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and

1 cwt. casks £6. 15s. less 2½% Liverpool; bleaching powder, £7. 5s. nett Tyne; saltcake, 32s. 6d.; borax, English refined, £30., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8½d., less 5% Liverpool; nitrate of soda, 9s. 1½d.; sulphate of ammonia, £10. 1s. 3d. to £10. 2s. 6d. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16. less 5% Liverpool; paraffin scale (hard), 2d., and soft 2d. per lb.; paraffin wax, 120°, semi-refined, 2½d.; paraffin spirit (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower); ditto (lubricating), 865°, £3. 5s. to £3. 10s., 885°, £4. 5s. to £5. 15s, and 890/895°, £5 to £6. 10s. Week's imports of raw sugar at Greenock were 33,689 bags.

# New Companies.

**Cardiff Free Leather, Dry Soap and Packing Co, Ld** —Capital £5,000. in £1. shares. The object of this company is to carry on the business of packers and vendors of dry soap, etc.

**Rhondda, Pontypridd. and Aberdare Hide, Tallow, and Wool Co., Ld.**—Capital £5,000. in £1. shares. The object of this company is to trade as fellmongers, tallow chandlers, wool staplers, and dealers in tallow, wool, etc.

**Mineral Fibre Co., Ld.**—Capital £6,500. in shares of £10. each. The object of this company is to manufacture slag wool or silicate cotton. The subscribers to the memorandum of association are:—W. Mullock, Newport, Mon., stationer; J. Monon, Newport, solicitor; L. M. Morris, Newport, solicitor's managing clerk; F. P. Rolijent, Newport, stockbroker; A. K. Cole, Newport, secretary; E. R. Gibbs, Newport, articled clerk; H. W. Clements, Newport.

**Marble (Moreau Rae) Syndicate, Limited.**—Capital £60,000. in £1. shares. This company has been formed to acquire and work certain patents, rights, etc., for the manufacture of artificial stone, and also to trade as dealers in lime, cement, chalk, sand, etc., and other mineral products. The subscribers to the memorandum of association are:—C. B Waller, Clapham-park, retired major; W. Hastings Toone, Berkeley-street, W., gentleman; P. D. Waterlow, 26, Great Winchester-street, E.C., stationer; W. W. Waadman, West Kensington, accountant; C. M. Rae, 24, Upper Berkeley-street, W., railway official; H. Schmettan, 31, Abchurch-lane, E.C., solicitor: H. E. Podwell, 85, London-wall, E.C., merchant.

# Gazette Notices.

### PARTNERSHIPS DISSOLVED.

H. J. Dale and F. E. W. Tapson, under the style of Dale, Tapson and Co., Great St. Helens, City, oil merchants.

H. Creemer and S. Cheeld, under the style of Creemer and Cheeld, Chesham, electrical engineers.

E. H. Wiseman and J. T. Palmer, under the style of Wiseman and Palmer, Richmond, chemists and druggists.

### BANKRUPTCY ACTS, 1883 and 1890.

#### Receiving Orders.

Hardy, Robert, Fenchurch-street, City, and Camden-square, N.W., late Great Tower-street, City, chemist and druggist.

Snowdon, F. Seaton (trading as Robert Ha and Co.), Portslade, Sussex, manufacturer of sheep dip.

#### Adjudication.

Whitworth, Alfred Ernest (trading as the Manchester and Liverpool Soap Co.), Manchester, soap manufacturer.

# The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

### APPLICATIONS FOR LETTERS PATENT.

**Pickling Iron.** A. S. Ramage. 21,085. Nov. 21st.
**Aluminium Alloys.** C. Allen, J. Clark, and G. W. Clark. 21,108. Nov. 21st.
**New Colouring Matters.** H. E. Newton. 21,139. Nov. 21st.
**Peat Fuel.** W. Henry and J. Henry. 21,151. Nov. 21st.
**Colouring Matters.** H. H. Lake. 21,154. Nov. 21st.
**Soldering Aluminium and other Metals.** R. Haddan. 21,162. Nov. 21st.
**Azo Colouring Matters.** O. Imray. 21,166. Nov. 21st.
**Blue Colouring Matters.** O. Imray. 21,167. Nov. 21st.
**Blue Colouring Matters.** O. Imray. 21,168. Nov. 21st.
**Obtaining Zinc from Blende by Electrolysis.** G. E. Cassel and F. A. Kjellin. 21,193. Nov. 22nd.
**Purifying Sewage and other Polluted Waters.** J. Swallow. 21,215. Nov. 22nd.
**Refining Sugar.** W. P. Thompson. 21,217. Nov. 22nd.
**Recovering Tin from Tin Scrap and Tinned Iron.** W. Tatlow. 21,228. Nov. 22nd.
**Apparatus for Absorbing Chlorine and other Gases.** J. H. Lewis. 21,275. Non. 22nd.
**Drying Brewers' Grains.** H. H. Leigh. 21,284. Nov. 22nd.
**Treating and Utilising Sewage.** A. O. Jones. 21,291. Nov. 23rd.
**Tanks for Containing Hydrochloric Acid.** T. D. Owen. 21,294. Nov. 23rd.
**New Soldering Flux.** A. McKenzie. 21,298. Nov. 23rd.
**Mechanical Stokers.** W. D. Grimshaw. 21,328. Nov. 23rd.
**Treating Zinc produced by Electrolysis.** W. Wright and J. B. Hamond. 21,348. Nov. 23rd.
**Improved Soap.** J. Kennedy. 21,414. Nov. 24th.
**Azo Colouring Matters.** Messrs. Read Holliday and Sons, and K. B. Elbel. 21,440. Nov. 24th.
**Improvements in the Manufacture of Ammonium Sulphate and other Salts.** C. S. Ellery. 21,476. Nov. 24th.
**Incombustible and Inodorous Celluloid.** E. Cadoret and E. Degraide. 21,485. Nov. 25th.
**Manufacture of Cyanogen Compounds.** J. S. Muir. 21,511. Nov. 25th.
**Manufacture of Carbonic Acid, Lime, Magnesia, and other Oxides.** The Manchester Oxygen Co., Ltd., and W. M. Jackson. 21,520. Nov. 25th.
**Artificial Stone.** K. S. Meyer. 21,640. Nov. 26th.
**Manufacture of Gas and Bye-Products from Liquid Hydrocarbons.** P. Dvorkovitz. 21,647. Nov. 26th.
**Manufacture of Gas and Bye-Products from Liquid Hydrocarbons.** P. Dvorkovitz. 21,648. Nov. 26th.
**Improvements in the Manufacture of Gas for illuminating purposes.** R. O. Paterson. 21,649. Nov. 26th.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending November 26th.*

**Alkali—**

| | | |
|---|---|---|
| France, | 100 c. | Arnati & Harrison |

**Ammonium Chloride—**

| | | |
|---|---|---|
| Melbourne, | 6 pkgs. | Clifford, Christopherson, & Co |

**Antimony—**

| | | |
|---|---|---|
| Australia, | 102 t. | Bk. of N. S. W. |
| ,, | 31 | H. Bath & Son |
| ,, | 10 | Marcus & Co. |
| ,, | 30 | H. Bath & Son |
| E. Indies, | 41 | Pillow, Jones, & Co. |
| Italy, | 40 | Novelli & Co. |
| Australia, | 40 | T. Merry & Son |
| ,, | 10 | J. J. Pratt & Son |
| ,, | 39 | Major & Field |

**Asbestos—**

| | | |
|---|---|---|
| Italy, | £240 | L. & I. D. Jt. Co. |
| ,, | 35 | Flageollet & Co. |
| France, | 14 | Mory & Co. |
| Italy, | 50 | A. H. Smith |
| ,, | 350 | J. Pickthall & Co. |

**Arsenic—**

| | | |
|---|---|---|
| Germany, | 25 pkgs. | J. A. Drew |
| ,, | 40 | G. Boor & Co. |
| ,, | 20 | B. & F. Wf. Co., Ltd. |

**Barium Chloride—**

| | | |
|---|---|---|
| Germany, | 23 pkgs. | Petri Bros. |

**Barytes—**

| | | |
|---|---|---|
| Germany, | 56 cks. | W. Fenton |
| ,, | 110 | W. Harrison & Co. |
| Belgium, | 21 | Stobbs, Wilson, & Co. |
| Holland, | 22 | W. Harrison & Co. |
| Belgium, | 47 | Colthurst & Harding |
| ,, | 200 | Leach & Co. |
| ,, | 44 | J. B. Orr & Co. |
| Holland, | 13 | Beresford & Co. |

**Boracic Acid—**

| | | |
|---|---|---|
| Italy, | 2 pkgs. | J. Puddy & Co. |

**Caoutchouc—**

| | | |
|---|---|---|
| Zanzibar, | 10 c. | L. & I. D. Jt. Co. |
| U. States, | 89 | Stiebel Bros. |
| France, | 6 | Flageollet & Co. |
| ,, | 40 | Prop. Bull Wf. |
| U. States, | 30 | ,, |
| Germany, | 1 | Elkan & Co. |
| E. Indies, | 4 | L. & I. D Jt. Co. |

**Carbolic Acid —**

| | | |
|---|---|---|
| Holland, | 159 pkgs. | T. Palmer |

**Castor Oil—**

| | | |
|---|---|---|
| Italy, | 10 cs. | Major & Field |
| ,, | 25 | L. & N. W. Ry. Co. |
| ,, | 14 | Baiss Bros. & Co. |
| ,, | 50 | C. Atkins & Nisbet |

France, 20 brls Beresford & Co.
" 25 Leach & Co.
" 118 J. Greig
" 20 F. Boehm
Italy, 5 Knight & Morris

**Caustic Potash—**
France, 10 c. Petri Bros.

**Caustic Soda—**
Holland, 220 c. 14 cks. Beresford & Co.

**Chemicals** *(otherwise undescribed)*
Germany, £13 Page. Son, & Co.
Holland, 6 L. C. & D. Ry.
" 15 Phillipps & Graves
" 10 T. Palmer
Germany, 73 pkgs. T. H. Lee
" 127 A. & M. Zimmermann
" 6 W. J. Crook
U. States, 10 A. F. White & Co.
Germany, 12 L. & I. D. Jt. Co.
N. Russia, 7 M. D. Co.
Holland, 18 F. Boehm

**Chrome Alum—**
Holland, 5 pkgs. J. Owen

**Cream of Tartar—**
France, 4 pkgs. F. C. Devon & Co.
" 11 B. & F. Wf. Co., Ltd.
Holland, 15 Middleton S. S. Wf. Co.
Italy, 21 Howards & Sons
Spain, 5 B. & N. Wf. Co., Ltd.
France, 4 Ross & Deering
" 12 E. W. Carling & Co.
" 9 Middleton & Co.
" 5 C. F. Gerhardt

**Dyestuffs—**

**Aniline**
Germany, 2 pkgs. H. Lambert

**Annatto**
Ceylon, 12 pkgs. H. A. Litchfield & Co.

**Argols**
Cape Town, 24 pkgs. Brown & Elmslie
France, 10 Williams, Torrey, & Co., Ltd.

**Cutch**
France, 40 pkgs. Hale & Son

**Extracts**
France, 130 pkgs. Prp. Chmbln.'s Wf.
" 100 "
" 3 Union L. Co. Ltd,
" 250 L. J. Levinstein & Sons
" 100 Phillipps & Graves
Germany, 2 T. H. Lee
Denmark, 1 Sorensen & Co.

**Gambier**
E. Indies, 182 pkgs. Baxter & Hoare
" 1,819 Adamson, Gilfillan, & Co
U. States, 45 E. Boustead & Co.

**Indigo**
E. Indies, 77 chts. W. Brandts, Son, & Co.
" 31 L. & I. D. Jt. Co.
" 5 H. W. Jewesbury & Co.
Austria, 5 M. D. Co.
France, 4 pkgs. Union L. Co., Ltd.
Belgium, 1 cht. T. H. Lee

**Safflower**
E. Indies, 19 pkgs. L. & I. D. Jt. Co.

**Sumac**
Italy, 350 bgs. G. S. N. Co
" 650 W. France & Co., Ld.
" 50 Dunlop & Co.
" 1,401 J. Kitchin, Ltd.
" 50 Italo-Brit. S. N. Co.
" 50 J. Knill & Co.
" 100 F. Roberts
" 210 Beresford & Co.
" 320 Sollas & Sons

**Tanners' Bark**
Queensland, 1 t. Leach & Co.
Melbourne, 62 Flack, Chandler, & Co.
" 65 Brown & Elmslie
N. Zealand, 6 G. N. Souratty & Co.

**Valonia**
A. Turkey, 92 t. A. & W. Nesbitt
" 33 J. Graves
" 8 F. Huth & Co.
Greece, 1 J. Graves

**Farina—**
Holland, 100 pkgs. M. Measday
Germany, 10 Dunlop Bros. & Co.

**Glucose—**
U. States, 500 pkgs. 500 c. L. Sutro & Co.
" 500 500 c. Barrett, Tagant, & Co.
Germany, 581 4,587 L. Sutro & Co.
" 12 20 Spies Bros. & Co.
" 25 120 Page, Son, & East
France, 120 120 Barrett, Tagant, & Co.
U. States, 8 79 Beck & Pollitzer

**Iodine—**
Germany, 144 pkgs. A. Gibbs & Sons

**Manganese—**
Japan, 103 t. J. Greig

**Manure—**
France, 6 t. G. Dunlop & Co.
Germany, 55 F. W. Berk & Co., Ltd.
France, 70 J. Burnett & Sons

**Methyl Alcohol—**
Holland, 8 dms. Lister & Biggs
U. States, 100 brls. Union L. Co., Ltd.

**Mica—**
Adelaide, £35 F. Braby & Co.

**Nickel Sulphate—**
Germany, 5 pkgs. J. Witt

**Ochre—**
France, 61 cks. W. Harrison & Co.
" 185 pkgs. Blundell, Spence, & Co.
Holland, 10 Phillipps & Graves
France, 30 brls. Ross & Deering
" 7 cks. O'Hara & Hoar

**Painters' Colours—**
France, 25 pkgs. Flageollet & Co.
Germany, 12 T. H. Lee
Belgium, 29 T. Palmer
Hong Kong, 1 C. M. Liddell & Co.
Italy, 30 cks. Magee, Taylor, & Co.
U. States, 50 brls. M. Ashby, Ld
Germany, 46 G. Steinhoff
" 21 L. & I. D Jt. Co.
Belgium, 20 Magee, Taylor, & Co.
U. States, 3 Pickford & Co.
Germany, 13 Phillipps & Graves
Belgium, 104 W. Harrison & Co.
U. States, 100 J. Melvin

**Paraffin Wax—**
U. States, 377 brls. C. Ogleby & Co.
" 1,973 J. H. Usmar & Co.
" 300 Williams, Torrey, & Co.
" 300 A. Brown & Co.
" 120 Prod. Brokers Co.
" 300 Mordaunt Bros.

**Phosphate Rock—**
Belgium, 220 t. West & Penrose
Holland, 207 Anglo Contl. G. Wks.
Belgium, 123 T. Farmer & Co.

**Pitch—**
Holland, 88 cks. Thames S. T. & L. Co.
Germany, 10 B. & F. Wf. Co., Ltd.
" 10 Craven & Co.
France, 72 H. Hill & Sons

**Plumbago—**
Ceylon, 35 brls. R. G. Hall & Co.
" 176 cks. J. Forsey
" 137 H. A. Litchfield & Co.
" 131 N. S. S. Co.
Holland, 57 B. Gallaway
Germany, 22 Le Sueur & Co.
Ceylon, 317 J. Thredder, Son, & Co.

**Potash—**
Germany, 10 pkgs. L. & I. D. Jt. Co.
France, 102 Petri Bros.

**Potassium Bicarbonate—**
Holland, 6 cks. A. & M. Zimmermann
Germany, 3 cs. H. Lambert

**Potassium Carbonate—**
Holland, 300 c. Spies Bros. & Co.

**Potassium Iodide—**
France, 2 pkgs. Mory & Co.

**Potassium Sulphate—**
France, 63 pkgs. F. W. Berk & Co., Ltd.
" 109 Petri Bros.

**Saltpetre—**
Germany, 6 cks. Craven & Co.
" 172 P. Hecker & Co.
" 70 T. Merry & Son
" 100 C. Wimble & Co.
" 20 Baiss Bros. & Co.

**Sodium Acetate—**
France, 15 pkgs. H. Lorenz

**Sodium Hyposulphite—**
Germany, 186 pkgs F. Boehm

**Sodium Nitrate—**
France, 9 pkgs. G. Dunlop & Co.

**Stearine—**
France, 210 bgs. Beresford & Co.
Melbourne, 30 Robinson, Roberts, & Co.

**Sulphur—**
Italy, 300 t. Brandram, Bros., & Co.
" 5 F. Smith
Carthagena, 100 A. Hunter & Co.

**Talc—**
France, £20 G. G. Blackwell

**Tallow—**
Sydney, 36 cks. Leach & Co.
Queensland, 10 L. & I. Dk. Co.
N. Zealand, 12 "
" 59 Culverwell, Brooks, & Co.
U. States, 65 Prod. Brokers Co., Ltd.
N. Russia, 50 Leach & Co.
Melbourne, 62 R. Brooks & Co.
" 80 Goldsbrough, Mort, & Co.
" 98 Baxter & Hoare
Queensland, 29 D. J. Keymer & Co.
N. Zealand, 49 N. Z. L. & M. A. Co.
" 23 Hoare, Wilson, & Co.
" 827 Flack, Chandler, & Co.
" 6 J. Graves
" 25 Brown & Elmslie
U. States, 15 pkgs. W. W. Young
N. Zealand, 6 Bourne Bros.
Queensland, 101 Anning & Cobb
" 28 Goldsbrough, Mort, & Co.
" 60 Cuthbert & Hall
" 95 Dalgety & Co.
" 8 Leach & Co.
" 112 Phillipps & Graves
" 145 Aust. Meat Co.
" 1 Dyster, Nalder, & Co.
Melbourne, 126 Sollas & Sons

**Tallow and Stearine—**
U. States, 6 cks. Tingle, Jacobs, & Co.

**Tartaric Acid—**
Holland, 52 pkgs. B. & F. Wf. Co., Ltd.
" 4 C. Christopherson & Co.
" 4 Middleton & Co.
France, 20 B. & F. Wf. Co., Ltd.

**Turpentine—**
Savannah, 1,933 brls. Nickoll & Knight

**Ultramarine—**
Holland, 5 cs. G. Rahn & Co.
" 35 pkgs. Thames S. T. & L. Co., Ltd.
Germany, 23 5 cs. G. Steinhoff
Holland, 18 Haeffner, Hilpert, & Co.
" 1 Phillipps & Graves
Belgium, 3 brls. Leach & Co.

**Varnish—**
U. States, 10 pkgs. Blundell, Spence, & Co.
France, 20 Flageollet & Co.
Belgium, 1 Stobbs, Wilson, & Co.

**White Lead—**
France, 48 cks. W. Harrison & Co.
Holland, 28 Burrell & Co.
France, 20 brls. H. Johnson & Sons
Germany, 15 W. Taylor & Co.
Belgium, 12 J. L. Lyon & Co.
" 24 Leach & Co.
Holland, 10 F. Pryor
" 4 Spies Bros. & Co.
Germany, 25 J. Matton
" 20 N. J. Fenner & Co.
" 33 W. Fenton
" 12 W. Taylor, jun., & Co.
France, 5 Colthurst & Harding

**Zinc Oxide—**
Holland, 125 brls. M. Ashby, Ltd.
Germany, 25 cks. J. Matton

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## LIVERPOOL.

*Week ending November 24th.*

**Acetic Acid—**
Rotterdam, 16 botls.

**Barytes—**
Antwerp, 25 cks.

**Barytes Sulphate—**
Ghent, 10 cks.

**Benzine—**
New York, 500 brls.

**Castor Oil—**
Calcutta, 1,500 cs. Ralli Brs.
" 250

**Chloroform—**
Havre, 1 pkg Cunard S.S. Co

**Colours—**
Ghent, 4 cs. 1 brl. J. T. Fletcher & Co.
Antwerp, 30 "
Rotterdam, 22 21 cks.

**Cottonseed Oil—**
New York, 10 brls.

**Disinfectants—**
Rotterdam, 1 brl.

**Dyestuffs—**

**Algorabilla**
Valparaiso, 164 bgs. Hughes, Treleaven & Co.

**Annatto**
Bordeaux, 5 cks.

**Argols**
Oporto, 31 cks. German Bank of London

**Cochineal**
Las Palmas, 10 bgs. Widow Duranty & Son
Teneriffe, 4 G. S. Bruce
Gr. Canary, 15 sks. Sperting & Williams
" 100 Roberts & Evans

**Extracts**
Fiume, 400 brls. Boutcher, Bacon
Antwerp, 160 cks.

**Madder**
Smyrna, 25 bls.

**Myrabolams**
Bombay, 1,000 bgs.

**Orchella**
Valparaiso, 42 bls. G. S. Bruce

**Saffron**
Valencia, 1 cs.

**Valonia**
Smyrna, 52 t. Essayan, Shahum & Co.
" 7 bgs. Barry Brs.
" 2 J. Alazrachi
" 502 Schweder & Co.
" 15 Barff & Co., Ld.
" 40 Andrsulo Brs.
" 1 C. & G. Gulbenkian & Co.
" 1 Mauro, Valieri & Co.
" 1 Papayanni & Co.
" 843 25 t.
Constantinople, 515 bgs. A. Inglesi
" 163
Patras, 120 Barff & Co., Ld.
" 294 G. E. Shiropulo
" 200 N. D. Lappa

**Borax—**
Montreal, 4 t. 10 c. £127
Constantinople, 12 17

**Calcined Magnesia—**
Genoa, 4 cs.

**Carbolic Acid—**
Rotterdam, 10 t. 5 c. £451
Barcelona, 8 2 q. 14

**Castor Oil—**
C. C. Castle, 3 cs.

**Caustic Potash—**
New York, 7 t. £206

**Caustic Soda—**
Amsterdam, 111 dms.
Barcelona, 332 110 brls.
Boston, 50
Cadiz, 16
Constantinople, 14 kgs.
Galveston, 60
Marseilles, 55
New Orleans, 101
Rotterdam, 187 7
Rouen, 44
St. John's, Nfld., 6 pkgs.
Sydney, 4
Tampico, 100 kgs.
Ancona, 70
Antwerp, 4
Bahia, 5
Baltimore, 135
Bari, 127
Bombay, 25
Fiume, 43
Genoa, 70
Leghorn, 991
Malaga, 80
Manilla, 186
Melbourne, 4
Messina, 35
M. Video, 50
New York, 360 15 bxs.
Paranquay, 5
Rangoon, 14
Rio de Janeiro, 27
Salonica, 36
San Juan, 3
Seville, 35
Tunis, 11

**Chemicals** *(otherwise undescribed)*
Leghorn, 2 t. 10 c. 2 q. £89
Barcelona, 1 33
Syra, 7 2 q. 11
Kurrachee, 18 29
Oporto, 5 10
Philadelphia, 13 3 289
Ancona, 6 12
Toronto, 1 22
Naples, 1 16 59
Alexandria, 5 164
Genoa, 1 4 3 40
Jeddah, 1 3
Trieste, 1 33
Venice, 1 6 3 41
Hamburg, 3 8 3 105

**China Clay—**
Boston, 100 t.
Calcutta, 200 brls.

**Citric Acid—**
Lisbon, 5 c. 2 q. £45

**Coal Products—**
**Aniline Colours**
Madras, 1 cs.
**Aniline Oil**
Genoa 2 dms.
New York, 45
**Aniline Salts**
Barcelona, 10 cks.
New York, 4

**Cobalt Oxide—**
Seville, 1 c. 3 q. £72

**Colours—**
Genoa, 1 cs.
Rio de Janeiro, 17 kgs.
Constantinople, 1
Seville, 1

**Cooperas—**
Constantinople, 4 t. 12 c. £8
Calcutta. 13 13 22

**Copper Oxide—**
New York, 9 c. £20

**Copper Sulphate—**
M. Video, 10 c. £8
Constantinople, 10 8
Ancona, 6 t. 5 2 q. 90
Danzig, 10 1 2 160
Marseilles, 103 12 2 1,560
Kustendjie, 9 16 3 150
Naples, 1 9 3 22
Bombay, 1 10 23
Rio de Janeiro, 19 1 14
B. Ayres, 2 6 30
Venice, 39 19 3 570
Vigo, 1 10 3 22
Barcelona, 5 2 2 76
Bordeaux, 100 7 1 1,500
Genoa, 34 5 490
Valparaiso, 15 226

**Corrosive Sublimate—**
Alexandretta, 1 c. 1 q. £15

**Disinfectants—**
Philadelphia, 20 dms. £7
Alexandria, 3 cs. 5

**Guano—**
Hamburg, 44 t. 6 c. 1 q. £199

**Gypsum—**
New York, 35 t. 13 c. £131

**Horn Piths—**
Antwerp, 25 pks.

**Hydrochloric Acid—**
San Juan, P.R., 20 cs. £14

**Iron Oxide—**
Philadelphia, 10 cks. £60
Singapore, 10 c. 2 q. 34

**Lead Acetate—**
Calcutta, 1 t. 12 c. £45

**Lime—**
Demerara, 204 pns.

**Magnesia—**
Ceara, 2 cs.
Rotterdam, 2 pkgs.

**Magnesium Citrate—**
Lisbon, 24 tcs.

**Magnesium Sulphate—**
Maranham, 10 brls.

**Manure—**
Genoa, 78 t. 16 c. 1 q. £235
Bordeaux, 3 10 20

**Ochre—**
Kingston, Jam., 12 brls.

**Oxalic Acid—**
Bilbao, 7 c. £9

**Paint—**
Alexandria, 35 dms.
Amsterdam, 6 4 kgs.
Aux Cayes, 5 cks.
B. Ayres, 121
Cabenda, 1
Caibarien, 7
Cameroons, 10
Cardenas, 2
Cavite, 60 dms.
Colon, 3
Guayaquil, 80 cs.
Las Palmas, 3
Lisbon, 5 12 brls.
Maranham, 4
Mayaquez, 5
New York, 8 170 kgs. 10
Para, 2
Salonica, 10
St. John's, Nfld, 7
Teneriffe, 73
Underhill, 28 12 dms.
Cadiz, 68
Cienfuegos, 6
Curacao, 25
Iquique, 102 cs. 8
Panama, 152
Porto Rico, 40
Rio Grande. 1
Santa Catharina, 52 cs. 12 34 brls.
Valparaiso, 72 cs. 15 cks. 125 76
40 dms.
Vigo, 2 brls.
Warre, 1 6 12
Zante, 5

**Painters' Colours—**
Amsterdam, 24 cks.
B. Ayres, 20 50 brls.
Ceara, 16 5 dms.
Pisagua, 60 cs.
Trieste, 40 200 bgs.
Baltimore, 317
Barcelona, 8
Lenin, 1 6 kgs. 6 dms.
Boca 895 t. 8 c 41
Bombay, 43 cs. 340
Brass. 6 12
Calcutta, 20
Cephalonia, 7 brls.
Guayaquil, 41 cs. 2
Halifax, 10
Iquique, 15
Larissa. 8
Lisbon, 1
Madras, 20 cs.
Malta, 20
Nassau, 5 132
Oporto, 10
Para, 2 10
Port-au-Prince, 330
Savanilla, 4 pkgs.

**Paraffin Wax—**
Odessa, 214 bgs. 205 c.
Venice, 6 4 cks.
Constantinople, 100 cs.
Rio de Janeiro, 25 brls.

**Phosphate—**
Barbadoes, 33 t. £175

**Phosphorus—**
San Juan, 1 cs. £14
Santiago de Cuba, 2 28

**Pitch—**
Carril, 50 brls.
Genoa, 30 cks.
Naples, 115 t.

**Plumbago—**
Bahia, 3 cks.

**Potassium Bichromate—**
Alexandretta, 16 c. 2 q. £35

**Potassium Carbonate—**
New York, 19 t. 12 c. £383
Boston, 4 1 107

**Potassium Chlorate—**
Genoa, 3 t. £113
Santiago de Cuba, 1 10 c. 100
Ancona, 8 11
New York, 5 233
Capetown, 1 46
Philadelphia, 7 10 339
Hamburg, 1 56

**Potassium Prussiate—**
Oporto, 1 c. 1 q. £6

**Potassium Silicate—**
Alicante, 17 t. 5 c. 2 q. £102

**Salt—**
Antigua, 5 t.
Barbadoes, 55
Bata, 24
Benin, 10
Boston, 320
Brass, 10
Buguma, 20
Calcutta, 5,412
Callao, 10 c
Cameroons, 47 14
Cape Lopez, 9
Conakry, 25
Galveston, 570
Gr. Bassa, 16
Halifax, 2
Matadi, 1
M. Video, 4¼
Montreal, 91
New Orleans, 991
Newport News, 32
New York, 79 18
Old Calabar, 69
Sierra Leone, 549
Trinidad, 49 19
Victoria, B.C., 103½
Amsterdam, 170
Antwerp, 430
Baltimore, 370
Bonny, 10
B. Ayres, 16
C. C. Castle, 6¼
Capetown, 5
Copenhagen, 710
E London, 49½
Ghent, 297
Lagos, 40
Mobile, 400
Norfolk 500
Philadelphia, 65
Rotterdam, 153
San Francisco, 10
Vancouver, 100

**Salt Cake—**
Baltimore, 382 t. 4 c. £853

**Saltpetre—**
Santa Catherina, 1 t. 11 c. £37
Maranham, 15 3 q. 25
Bilbao, 2 2 9
Pernambuco, 8 15 221
Rio de Janeiro, 12 16
Maceio, 1 9 2 33

**Sheep Dip—**
Galveston, 3 t. 11 c. £170
Baltimore, 10 cks. 60
M. Video, 3 6 71

**Soap—**
Accra, 3 cs.
Alexandria, 12
Barbadoes, 1,100 bxs.
Batanga, 100
Benin, 500
Bermuda, 5
Bombay, 9 90 dms.
Bonny, 50
C. C. Castle, 70 2
Capetown, 1,350 25
Copenhagen, 80
Gibraltar, 275
Half-Jack, 9
Las Palmas, 340
Leghorn, 1
Natal, 1,050
Paranagua, 2
Rangoon, 12
Rouen, 31
Salonica, 41
St. Thomas, 200
Teneriffe, 424
Trinidad, 964
Victoria, B.C., 86
Warre, 800
Algoa Bay, 1,725
Ambrizette, 10
Axim, 20
Batavia, 2,030
Boston, 6
Brussels, 400
B. Ayres, 9
Cameroons, 4
Canaria, 230
Carthagena, S.A., 3
Demerara, 200
E. London, 1,034
Genoa, 180
Hong Kong, 500
Lisbon, 1
Malta, 20 pkgs.
Mazagan, 10
Monrovia, 30
Mossel Bay, 212
Nassau, 17
New York, 500
Pt. Elizabeth, 549
St. John's, Nfld., 150 25
Santa Cruz, 2
Shanghai, 2,570
Sourabaya, 1,500
Valparaiso, 7

**Soda Alkali—**
Buffalo, 60 brls.
Leghorn, 80
Odessa, 100
Zante, 20

**Soda Ash—**
Baltimore, 986 cks. 2,100 bgs.
B Ayres, 100 100 brls.
Callao, 80
Napanee, 12
N York, 149 tcs. 517 3,300
Philadelphia, 229 400
Porto Alegre, 119
Seville, 9
Smyrna, 50 200
Syra, 100
Wellington, 80
Boston, 306 1,200
Dunedin, 13
Genoa, 30
Ghent, 8
Lisbon, 2
M Video, 125
Oporto, 15
Paranquay, 30
San Sebastian, 14

**Soda Crystals—**
Gibraltar, 134 brls.
Halifax, 10 45 kgs.
New York, 100 45 cks
Portland, Or., 100
Sarnia, 25
Syra, 175
Venice, 1
Bilbao, 10
Catania, 13 1
Oporto, 13

**Sodium Arseniate—**
Rouen, 5 cks.

**Sodium Bicarbonate—**
Ancona, 116 kgs. 4 cks.
Antwerp, 60 4
Auckland, 20
Barcelona, 130
B. Ayres, 34
Catania, 80 bgs 40 20 bd
Genoa. 122
Halifax, 175
Havre, 50
Konigsberg, 100
Marseilles, 40
Naples, 50
Palermo, 20
Rotterdam, 20
Seville, 20 100
Smyrna, 110
Valparaiso, 40
Venice, 30
Wellington, 75
Dunedin, 100
Dunkirk, 7
St. John's, N.B., 200
Stettin, 81 2 cks. 1

**ichromate—**
15 cks.
, 32
, 40 kgs.
**arbonate—**
84 brls.
, 150
**hlorate—**
50 kgs.
3
20
, 100
**ilicate—**
20 cks.
16
a, Sp., 10
26 12 brls.
15
14
4
a, S.A., 10
:, 19
5
**of Lime—**
ıeiro, 19 t. 3 c. £50
-
, 7 t. 10 c. 1 q. £52
75 389
co, 1 19 22
17 2 11
**sphate—**
100 t. 1 c. 1 q. £225
20 kgs.
, 3 brls.
2 cks. 3 cs.
1
, 24
2
4
31
100
:, 1
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6
, 9
8
200 dms.
**ne—**
:en, 5 brls.
—
ia, 3 cs.
6 brls.
nople, 2
1
5
**oride—**
m, 9 c. 2 q. £10
**ite—**
, 7 kgs. 7 c.
ıneiro, 5
80

## HULL.

*ending November 26th.*

.cisco, 153 cks.
—
ırg, 1 cs.
**ıg Powder—**
112 cks.
**Soda—**
96 dms.
:rg, 1
179 34 cks.
69
**ls** *(otherwise undescribed)*
, 1 ck. 1 cs.
ım, 6
7 8
gen, 2 20 30 kgs.
ıia, 4 613 slbs.
4 1 pkg.
urg, 50 60
10
g, 24 13 30
47 120 pks.
, 5 dms. 2
:s, 10
8
ing, 15 pkgs.
100 45
ım, 1 1 ck. 30
6
m, 1

**Cottonseed Oil—**
Antwerp, 530 c.
Amsterdam, 36
Bordeaux, 211
Copenhagen, 203
Gothenburg, 99
Genoa, 84
Hamburg, 2,216
Leghorn, 92
Marseilles, 670
Naples, 43
Norrkoping, 50
Rotterdam, 2,346
Stettin, 236
**Creosote—**
Gothenburg, 6 cks.
**Dyestuffs** *(otherwise undescribed)*
Christiania, 1 cs.
Hamburg, 2
Reval, 15 cks.
Seville, 2
**Gypsum—**
New York, 120 cks.
**Linseed Oil—**
Bremen, 192 c.
Copenhagen, 10
Christiania, 189
Christiansand, 13
Genoa, 17
Hamburg, 850
Stavanger, 41
**Manure—**
Bordeaux, 100 bls.
Ghent, 446
Rouen, 5 t. 7 cks.
Stettin, 50
**Painters' Colours—**
Antwerp, 2 cs. 30 cks.
Amsterdam, 1 10
Bremen, 1
Copenhagen, 1 6
Danzig, 3
Drontheim, 7
Gothenburg, 3 12 1 dm.
Genoa, 6
Hamburg, 2 70 8
New York, 371
Rotterdam, 4 2
Riga, 6
Stettin, 8
San Francisco, 6
**Pitch—**
Antwerp, 56 t.
**Plumbago—**
Copenhagen, 1 cs.
**Size—**
Amsterdam, 10 cks.
Flushing, 34
**Soap—**
Bergen, 20 cs.
Christiania, 77
**Tar—**
Hamburg, 10 cks.
Rotterdam, 16
Stettin, 4
**Varnish—**
Antwerp. 1 cs.
Copenhagen, 1 1 ck.
Genoa, 1 dm.
Rotterdam, 1 bl. 1

## GLASGOW.

*Week ending December 1st.*

**Acid—**
Bombay, 9 t. 1 c. £160
**Alkali—**
Demerara, 3 t. 14 c. £36
**Ammonium Chloride—**
Bilbao, 5 t. 9 c. £100
Italy, 2 50
**Ammonium Sulphate—**
Valencia, 128 t. 3¾ c. £1,277
Bilbao, 5 3 q. 60
Martinique, 410 16 4,158
Demerara, 387 2 3,976
**Asbestos—**
Demerara, £95
**Benzol—**
Dieppe, 16 pns. 35 brls. £225
Rotterdam, 50 375
**Bichrome—**
Gothenburg, 7 t. 13¾ c. £298
Antwerp, 15 3¾ 495
Valencia, 21 801
**Borax—**
Halifax, 7 t. 2¾ c. £214

**China Clay—**
B. Ayres, 94 t. 10 c. £17
**Chloride of Lime—**
New York, 9 t. 18 c. £80
**Cottonseed Oil—**
Cadiz, 19¾ c. £15. 15s.
**Creosote Oil—**
Konigsberg, 10 brls. £10
Bordeaux, 512 t. 17 c 810
**Dried Blood—**
Demerara, £161
**Dyestuffs—**
**Aniline**
Calcutta, 2 c. £30
**Extract of Indigo**
New York, 3 t. 14 c. £76
**Extracts**
Valencia, 2 t. 17 c. £62
**Farina—**
Antwerp, 4 t. 18 c. £55
Philadelphia, 3 45
**Lead Acetate—**
Bombay, 3 t. 8 c. £52
**Linseed Oil—**
B. Ayres, 1 t. 18½ c. £48
Demerara, 2 2 33
**Magnesia—**
Valencia, 2 t. 3 c. £34
**Magnesium Sulphate—**
Bombay, 13 t. 12 c. £56
**Manganese—**
Antwerp, 4 t. 17 c. £43
New York, 10 4 99
**Manure—**
Valencia. 177 t. 2 c. £1,565
New York, 3 30
Demerara, 53 10 504
**Paint—**
B. Ayres, 19 t. 10½ c. £244
Bombay, 156
New York, 65
Bilbao, 1 18 £42. 18s.
Calcutta, 2 15 45
**Painters' Colours—**
Demerara, £44. 15s.
**Paraffin Wax**
Antwerp, 1 t. 2¾ c. £28
Bordeaux, 2 11 73
Bilbao, 10 6 291
Italy, 10 17 365
Stockholm, 17½ 24
**Phosphate—**
Demerara, 29 t. 11 c. £81
**Pitch—**
Baltimore, 61 t. 19 c. £130
Gothenburg, 29 16 67
Konigsberg, 23 58
Cadiz, 509 18¾ 509
**Potassium Bichromate—**
Italy, 3 t. 15 c. £153
**Rosin Oil—**
Konigsberg, 1 brl. £1. 6s.
**Soda Ash—**
Antwerp, 5 t. 6½ c. £32
**Sodium Bichromate—**
Italy, 7 t. 4 c. £238
**Sulphur—**
Demerara, 3 t. 13 c. £24
**Superphosphate—**
Italy, 19 t. 14 c. £110
**Tar—**
Colombo, £12. 15s.
Madras, £64
Konigsberg, 464 brls. 232
Philadelphia, 26 t. 15 c. 60
**Tar and Pitch—**
Calcutta, £30

## TYNE.

*Week ending November 26th.*

**Alkali—**
Rotterdam, 8 t. 1 c.
Ergasteria, 1 3
**Alum—**
Rotterdam, 10 t.
Seville, 2 4 c.
**Alumina Sulphate—**
Abo, 7 c.
**Ammonium Sulphate—**
Hamburg, 19 t. 18 c.
**Antimony—**
Hamburg, 2 t. 10 c.
**Barytes—**
Hamburg, 5 t.
Riga, 26 10 c.
Rotterdam, 55

**Bleaching Powder—**
Antwerp, 71 t. 19 c.
Hamburg, 90 8
Riga, 110 7
Christiania, 31 2
Rotterdam, 36 18
Abo, 33 9
Sornas, 20 6
Helsingfors, 70 9
Odense, 12 15
Drontheim, 10
**Caustic Soda—**
Antwerp, 17 t. 6 c.
Hamburg, 28 17
Abo, 3 6
Helsingfors, 9 5
Seville, 30
Copenhagen, 3 9
Gothenburg, 4 18
**Chemicals** *(otherwise undescribed)*
Antofagasta, 2 c.
**Litharge—**
Hamburg, 8 t. 5 c.
Riga, 11 16
Helsingfors, 5
**Magnesia—**
Antwerp, 2 c.
Hamburg, 5
**Naphthalene—**
Riga, 26 t.
**Paint—**
Antwerp, 1 t. 3 c.
**Potash—**
Ergasteria, ¼ c.
**Soda—**
Abo, 2 t. 3 c.
Bergen, 4 15
Rotterdam, 16 19
Abo, 2 14
Helsingfors, 3 2
Randers, 47 10
Copenhagen, 2 13
**Soda Ash—**
Bergen, 3 t. 2 c.
Gothenburg, 61 1
**Sulphur—**
Antwerp, 5 t. 1 c.
Riga, 25
Helsingfors, 80
Terneuzen, 10
Reval, 40 9
Gothenburg, 80
**Tallow—**
Hamburg, 2 t. 7 c.
**Tar—**
Abo, 17 t. 16 c.
**White Lead—**
Abo, 11 c.
Copenhagen, 2 t. 14

## GOOLE.

*Week ending November 16th.*

**Alkali—**
Ghent, 6 cks.
**Benzol—**
Dunkirk, 1 ck.
Ghent, 16 dms.
Rotterdam, 20
**Chemicals** *(otherwise undescribed.)*
Antwerp, 12 cks.
Hamburg, 5
Rotterdam, 200
**Dyestuffs** *(otherwise undescribed)*
Antwerp, 1 ck.
Ghent, 6 15 dms.
Hamburg, 21 10
**Manure—**
Hamburg, 372 bgs.
Rouen, 100
Rotterdam, 500
**Pitch—**
Dunkirk, 250 t.
Antwerp, 357
**Zinc Ashes—**
Antwerp, 35 bgs.

## GRIMSBY.

*Week ending November 19th.*

**Chemicals** *(otherwise undescribed)*
Antwerp, 6 cks.
Dieppe, 2
Hamburg, 2 15 cs.
**Coal Products** *(otherwise undesc'd.)*
Dieppe, 127 cks.

**Borax—**
Montreal, 4 t. 10 c. £127
Constantinople, 12 17

**Calcined Magnesia—**
Genoa, 4 cs.

**Carbolic Acid—**
Rotterdam, 10 t. 5 c. £451
Barcelona, 8 2 q. 14

**Castor Oil—**
C. C. Castle, 3 cs.

**Caustic Potash—**
New York, 7 t. £206

**Caustic Soda—**
Amsterdam, 111 dms.
Barcelona, 332 110 brls.
Boston, 50
Cadiz, 16
Constantinople, 14 kgs.
Galveston, 60
Marseilles, 55
New Orleans, 101
Rotterdam, 187 7
Rouen, 44
St. John's, Nfld., 6 pkgs.
Sydney, 4
Tampico, 100 kgs.
Ancona, 70
Antwerp, 4
Bahia, 5
Baltimore, 135
Bari, 127
Bombay, 25
Fiume, 43
Genoa, 70
Leghorn, 291
Malaga, 80
Manilla, 186
Melbourne, 4
Messina, 35
M. Video, 50
New York, 360 15 bxs.
Paranquay, 5
Rangoon, 14
Rio de Janeiro, 27
Salonica, 36
San Juan, 3
Seville, 35
Tunis, 11

**Chemicals** *(otherwise undescribed)*
Leghorn, 2 t. 10 c. 2 q. £89
Barcelona, 1 33
Syra, 7 2 q. 11
Kurrachee, 18 29
Oporto, 5 10
Philadelphia, 13 3 289
Ancona, 6 12
Toronto, 1 22
Naples, 1 16 59
Alexandria, 5 164
Genoa, 1 4 3 40
Jeddah, 1 38
Trieste, 1 33
Venice, 1 6 3 41
Hamburg, 3 8 3 105

**China Clay—**
Boston, 100 t.
Calcutta, 200 brls.

**Citric Acid—**
Lisbon, 5 c. 2 q. £45

**Coal Products—**
**Aniline Colours**
Madras, 1 cs.
**Aniline Oil**
Genoa 2 dms.
New York, 45
**Aniline Salts**
Barcelona, 10 cks.
New York, 4

**Cobalt Oxide—**
Seville, 1 c. 3 q. £72

**Colours—**
Genoa, 1 cs.
Rio de Janeiro, 17 kgs.
Constantinople, 1
Seville, 1

**Cooperas—**
Constantinople, 4 t. 12 c. £8
Calcutta. 13 13 22

**Copper Oxide—**
New York, 9 c. £20

**Copper Sulphate—**
M. Video, 10 c. £8
Constantinople, 10 8
Ancona, 6 t. 5 2 q. 90
Danzig, 10 1 2 160
Marseilles, 103 12 2 1,560
Kustendjie, 9 16 3 150
Naples, 1 9 3 22
Bombay, 1 10 23
Rio de Janeiro, 19 1 14
B. Ayres, 2 6 30
Venice, 39 19 3 570
Vigo, 1 10 3 22
Barcelona, 5 2 2 76
Bordeaux, 100 7 1 1,500
Genoa, 34 5 490
Valparaiso, 15 226

**Corrosive Sublimate—**
Alexandretta, 1 c. 1 q. £15

**Disinfectants—**
Philadelphia, 20 dms. £7
Alexandria, 3 cs. 5

**Guano—**
Hamburg, 44 t. 6 c. 1 q. £199

**Gypsum—**
New York, 35 t. 13 c. £131

**Horn Piths—**
Antwerp, 25 pks.

**Hydrochloric Acid—**
San Juan, P.R., 20 cs. £14

**Iron Oxide—**
Philadelphia, 10 cks. £60
Singapore, 10 c. 2 q. 34

**Lead Acetate—**
Calcutta, 1 t. 12 c. £45

**Lime—**
Demerara, 204 pns.

**Magnesia—**
Ceara, 2 cs.
Rotterdam, 2 pkgs.

**Magnesium Citrate—**
Lisbon, 24 tcs.

**Magnesium Sulphate—**
Maranham, 10 brls.

**Manure—**
Genoa, 78 t. 16 c. 1 q. £235
Bordeaux, 3 10 20

**Ochre—**
Kingston, Jam., 12 brls.

**Oxalic Acid—**
Bilbao, 7 c. £9

**Paint—**
Alexandria, 35 dms.
Amsterdam, 6 4 kgs.
Aux Cayes, 5 cks.
B. Ayres, 121
Cabenda, 1
Caibarien, 7
Cameroons, 10
Cardenas, 2
Cavite, 60 dms.
Colon, 3
Guayaquil, 80 cs.
Las Palmas, 3
Lisbon. 5 12 brls.
Maranham, 4
Mayaquez, 5
New York, 8 170 kgs. 10
Para, 2
Salonica, 10
St. John's, Nfld , 7
Teneriffe. 73
Underhill, 28 12 dms.
Cadiz, 68
Cienfuegos, 6
Curacao, 25
Iquique, 102 cs. 8
Panama, 152
Porto Rico, 40
Rio Grande. 1
Santa Catharina, 52 cs. 12 34 brls.
Valparaiso, 72 cs. 15 cks. 175 76
40 dms.
Vigo, 2 brls.
Warre, 1 6 12
Zante, 5

**Painters' Colours—**
Amsterdam, 24 cks.
B. Ayres, 20 50 brls.
Ceara, 16 5 dms.
Pivagua, 60 cs.
Trieste, 40 200 bgs.
Baltimore, 317
Barcelona, 8
Benin, 1 6 kgs. 6 dms.
Boca 895 t. 8 c 41
Bombay, 43 cs. 340
Brass. 6 12
Calcutta, 20
Cephalonia, 7 brls.
Guayaquil, 41 cs. 2
Halifax, 10
Iquique, 15
Larissa. 8
Lisbon, 1
Madras, 20 cs.
Malta, 20
Nassau, 5 132
Oporto, 10
Para, 2 10
Port-au-Prince, 330
Savanilla, 4 pkgs.

**Paraffin Wax—**
Odessa, 214 bgs. 205 c.
Venice, 6 4 cks.
Constantinople, 100 cs.
Rio de Janeiro, 25 brls.

**Phosphate—**
Barbadoes, 33 t. £175

**Phosphorus—**
San Juan, 1 cs. £14
Santiago de Cuba, 2 28

**Pitch—**
Carril, 50 brls.
Genoa, 30 cks.
Naples, 115 t.

**Plumbago—**
Bahia, 3 cks.

**Potassium Bichromate—**
Alexandretta, 16 c. 2 q. £35

**Potassium Carbonate—**
New York, 19 t. 12 c. £383
Boston, 4 1 107

**Potassium Chlorate—**
Genoa, 2 t. £113
Santiago de Cuba, 1 10 c. 100
Ancona, 8 11
New York, 5 233
Capetown, 1 46
Philadelphia, 7 10 339
Hamburg, 1 56

**Potassium Prussiate—**
Oporto, 1 c. 1 q. £6

**Potassium Silicate—**
Alicante, 17 t. 5 c. 2 q. £102

**Salt—**
Antigua, 5 t.
Barbadoes, 55
Bata, 24
Benin, 10
Boston, 320
Brass, 10
Buguma, 20
Calcutta, 5,412
Callao, 10 c
Cameroons, 47 14
Cape Lopez, 9
Conakry, 25
Galveston, 570
Gr. Bassa, 16
Halifax, 2
Matadi, 1
M. Video, 4¼
Montreal. 91
New Orleans, 991
Newport News, 32
New York. 79 18
Old Calabar, 69
Sierra Leone, 549
Trinidad, 49 19
Victoria. B.C., 103½
Amsterdam, 170
Antwerp, 430
Baltimore, 370
Bonny, 10
B. Ayres. 16
C. C. Castle, 6¼
Capetown, 5
Copenhagen, 710
E London, 49½
Ghent, 297
Lagos, 40
Mobile, 400
Norfolk 500
Philadelphia, 65
Rotterdam. 153
San Francisco, 10
Vancouver, 100

**Salt Cake—**
Baltimore, 382 t. 4 c. £853

**Saltpetre—**
Santa Catherina, 1 t. 11 c. £37
Maranham, 15 3 q. 25
Bilbao, 2 2 2
Pernambuco, 8 15 221
Rio de Janeiro, 12 16
Maceio, 1 9 2 33

**Sheep Dip—**
Galveston, 3 t. 11 c. £170
Baltimore, 10 cks. 60
M. Video, 3 6 71

**Soap—**
Accra, 3 cs.
Alexandria, 12
Barbadoes, 1,100 bxs.
Batanga, 100
Benin, 500
Bermuda, 5
Bombay, 9 90 dms.
Bonny, 50
C. C. Castle, 70 2
Capetown, 1,350 25
Copenhagen, 80
Gibraltar, 275
Half-Jack, 9
Las Palmas, 340
Leghorn, 1
Natal, 1,050
Paranagua, 2
Rangoon, 12
Rouen, 31
Salonica, 41
St. Thomas, 200
Teneriffe, 424
Trinidad, 964
Victoria, B.C., 80
Warre, 800
Algoa Bay, 1,725
Ambrizette, 10
Axim, 20
Batavia, 2,030
Boston, 6
Brussels, 400
B. Ayres, 2
Cameroons, 4
Canaria, 230
Carthagena, S.A., 3
Demerara, 200
E. London, 1,034
Genoa, 180
Hong Kong, 500
Lisbon, 1
Malta, 20 pkgs.
Mazagan, 10
Monrovia, 30
Mossel Bay, 212
Nassau, 17
New York, 500
Pt. Elizabeth, 549
St. John's, Nfld., 150 25
Santa Cruz, 2
Shanghai, 2,570
Sourabaya, 1,500
Valparaiso, 7

**Soda Alkali—**
Buffalo, 60 brls.
Leghorn, 80
Odessa, 100
Zante, 20

**Soda Ash—**
Baltimore, 986 cks. 2,100 bgs.
B Ayres, 100 100 brls.
Callao, 80
Napanee, 12
N York, 149 tcs. 317 3,300 bg
Philadelphia, 229 400
Porto Alegre, 119
Seville, 9
Smyrna, 50 200
Syra, 100
Wellington, 80
Boston, 306 1,200
Dunedin, 13
Genoa, 30
Ghent, 8
Lisbon, 2
M Video, 125
Oporto, 15
Paranquay, 30
San Sebastian, 14

**Soda Crystals—**
Gibraltar, 134 brls.
Halifax, 10 45 kgs.
New York, 100 459 c
Portland, Or., 100
Sarnia, 25
Syra, 175
Venice, 8
Bilbao, 10
Catania, 13 1
Oporto, 13

**Sodium Arseniate—**
Rouen, 5 cks.

**Sodium Bicarbonate—**
Ancona, 116 kgs. 4 cks.
Antwerp, 60 4
Auckland, 20
Barcelona, 130
B. Ayres, 54
Catania, 80 bgs 40 20 br
Genoa. 120
Halifax, 175
Havre, 80
Konigsberg, 100
Marseilles, 40
Naples, 50
Palermo, 20
Rotterdam, 20
Seville, 20 100
Smyrna, 110
Valparaiso, 40
Venice, 30
Wellington, 75
Dunedin, 100
Dunkirk, 7
St. John's, N.B., 200
Stettin, 81 2 sks. 3

**Sodium Bichromate—**
Ghent, 15 cks.
Terneuzen, 32
Valparaiso, 40 kgs.

**Sodium Carbonate—**
Boston, 84 brls.
New York, 150

**Sodium Chlorate—**
Boston, 50 kgs.
Ghent, 3
Hamburg, 20
New York, 100

**Sodium Silicate—**
Barcelona, 20 cks.
Callao, 16
Carthagena, Sp., 10
Oporto, 26 12 brls.
Sydney 15
Bilbao, 14
Carril, 4
Carthagena, S.A., 10
Melbourne, 19
Syra, 5

**Sulphate of Lime—**
Rio de Janeiro, 19 t. 3 c. £50

**Sulphur—**
Demerara, 7 t. 10 c. 1 q. £52
Boston, 75 389
Pernambuco, 1 19 22
M. Video, 17 2 11

**Superphosphate—**
Venice, 100 t. 1 c. 1 q. £225

**Tallow—**
Antigua, 20 kgs.
Barcelona, 3 brls.
Bayin, 2 cks. 3 cs.
Boca, 1
Cabadello, 24
Dixcove, 2
Madrid, 4
Oporto, 31
Alicante, 100
Appolonia, 1
Attoaboe, 2
Bilbao, 6
Hamburg, 9
Huelva, 8

**Tar—**
Natal, 200 dms.

**Turpentine—**
Copenhagen, 5 brls.

**Varnish—**
Alexandria, 3 cs.
Bombay, 6 brls.
Constantinople, 2
Genoa, 1
Madras, 5

**Zinc Chloride—**
Maranham, 9 c. 2 q. £10

**Zinc White—**
Cabedello, 7 kgs. 7 c.
Rio de Janeiro, 5
Galatz, 80

## HULL.

*Week ending November 26th.*

**Alum—**
San Francisco, 153 cks.

**Aniline—**
Gothenburg, 1 cs.

**Bleaching Powder—**
Stettin, 112 cks.

**Caustic Soda—**
Danzig, 96 dms.
Konigsberg, 1
Libau, 179 34 cks.
Stettin, 69

**Chemicals** *(otherwise undescribed)*
Antwerp, 1 ck. 1 cs.
Amsterdam, 6
Bergen, 7 8
Copenhagen, 2 20 30 kgs.
Christiania, 4 613 slbs.
Danzig, 4 1 pkg.
Gothenburg, 50 60
Genoa, 10
Hamburg, 24 13 30
Libau, 47 120 pks.
Leghorn, 5 dms. 2
Marseilles, 10
Naples, 8
Norrkoping, 15 pkgs.
Reval, 100 45
Rotterdam, 1 1 ck. 30
Stettin, 6
Stockholm, 1

**Cottonseed Oil—**
Antwerp, 530 c.
Amsterdam, 36
Bordeaux, 211
Copenhagen, 203
Gothenburg, 99
Genoa, 84
Hamburg, 2,216
Leghorn, 92
Marseilles, 670
Naples, 43
Norrkoping, 50
Rotterdam, 2,346
Stettin, 236

**Creosote—**
Gothenburg, 6 cks.

**Dyestuffs** *(otherwise undescribed)*
Christiania, 1 cs.
Hamburg, 2
Reval, 15 cks.
Seville, 2

**Gypsum—**
New York, 120 cks.

**Linseed Oil—**
Bremen, 192 c.
Copenhagen, 10
Christiania, 189
Christiansand, 13
Genoa, 17
Hamburg, 850
Stavanger, 41

**Manure—**
Bordeaux, 100 bls.
Ghent, 446
Rouen, 5 t. 7 cks.
Stettin, 50

**Painters' Colours—**
Antwerp, 2 cs. 30 cks.
Amsterdam, 1 10
Bremen, 1
Copenhagen, 1 6
Danzig, 3
Drontheim, 7
Gothenburg, 3 12 1 dm.
Genoa, 6
Hamburg, 2 70 8
New York, 371
Rotterdam, 4 2
Riga, 6
Stettin, 8
San Francisco, 6

**Pitch—**
Antwerp, 56 t.

**Plumbago—**
Copenhagen, 1 cs.

**Size—**
Amsterdam, 10 cks.
Flushing, 34

**Soap—**
Bergen, 20 cs.
Christiania, 77

**Tar—**
Hamburg, 10 cks.
Rotterdam, 16
Stettin, 4

**Varnish—**
Antwerp. 1 cs.
Copenhagen, 1 1 ck.
Genoa, 1 dm.
Rotterdam, 1 bl. 1

## GLASGOW.

*Week ending December 1st.*

**Acid—**
Bombay, 9 t. 1 c. £160

**Alkali—**
Demerara, 3 t. 14 c. £36

**Ammonium Chloride—**
Bilbao, 5 t. 9 c. £100
Italy, 2 50

**Ammonium Sulphate—**
Valencia, 128 t. 3¾ c. £1,277
Bilbao, 5 3 q. 60
Martinique, 410 16 4,158
Demerara, 387 2 3,976

**Asbestos—**
Demerara, £95

**Benzol—**
Dieppe, 16 pns. 35 brls. £225
Rotterdam, 50 375

**Bichrome—**
Gothenburg, 7 t. 13¾ c. £298
Antwerp, 15 3¾ 495
Valencia, 21 801

**Borax—**
Halifax, 7 t. 2¾ c. £214

**China Clay—**
B. Ayres, 94 t. 10 c. £17

**Chloride of Lime—**
New York, 9 t. 18 c. £80

**Cottonseed Oil—**
Cadiz, 19¾ c. £15. 15s.

**Creosote Oil—**
Konigsberg, 10 brls. £10
Bordeaux, 512 t. 17 c 810

**Dried Blood—**
Demerara, £161

**Dyestuffs—**
**Aniline**
Calcutta, 2 c. £30
**Extract of Indigo**
New York, 3 t. 14 c. £76
**Extracts**
Valencia, 2 t. 17 c. £62

**Farina—**
Antwerp, 4 t. 18 c. £55
Philadelphia, 3 45

**Lead Acetate—**
Bombay, 3 t. 8 c. £52

**Linseed Oil—**
B. Ayres, 1 t. 18½ c. £48
Demerara, 2 2 33

**Magnesia—**
Valencia, 2 t. 3 c. £34

**Magnesium Sulphate—**
Bombay, 13 t. 12 c. £56

**Manganese—**
Antwerp, 4 t. 17 c. £43
New York, 10 4 99

**Manure—**
Valencia. 177 t. 2 c. £1,565
New York, 3 30
Demerara, 53 10 504

**Paint—**
B. Ayres, 19 t. 10½ c. £244
Bombay, 156
New York, 65
Bilbao, 1 18 £42. 18s.
Calcutta, 2 15 45

**Painters' Colours—**
Demerara, £44. 15s.

**Paraffin Wax**
Antwerp, 1 t. 2¾ c. £28
Bordeaux, 2 11 73
Bilbao, 10 6 291
Italy, 10 17 365
Stockholm, 17½ 24

**Phosphate—**
Demerara, 29 t. 11 c. £81

**Pitch—**
Baltimore, 61 t. 19 c. £130
Gothenburg, 29 16 67
Konigsberg, 23 58
Cadiz, 509 18¾ 509

**Potassium Bichromate—**
Italy, 3 t. 15 c. £153

**Rosin Oil—**
Konigsberg, 1 brl. £1. 6s.

**Soda Ash—**
Antwerp, 5 t. 6½ c. £32

**Sodium Bichromate—**
Italy, 7 t. 4 c. £238

**Sulphur—**
Demerara, 3 t. 13 c. £24

**Superphosphate—**
Italy, 19 t. 14 c. £110

**Tar—**
Colombo, £12. 15s.
Madras, £64
Konigsberg, 464 brls. 232
Philadelphia, 26 t. 15 c. 60

**Tar and Pitch—**
Calcutta, £30

## TYNE.

*Week ending November 26th.*

**Alkali—**
Rotterdam, 8 t. 1 c.
Ergasteria, 1 3

**Alum—**
Rotterdam, 10 t.
Seville, 2 4 c.

**Alumina Sulphate—**
Abo, 7 c.

**Ammonium Sulphate—**
Hamburg, 19 t. 18 c.

**Antimony—**
Hamburg, 2 t. 10 c.

**Barytes—**
Hamburg, 5 t.
Riga, 26 10 c.
Rotterdam, 55

**Bleaching Powder—**
Antwerp, 71 t. 19 c.
Hamburg, 90 8
Riga, 110 7
Christiania, 31 2
Rotterdam, 36 18
Abo, 33 9
Sornas, 20 6
Helsingfors, 70 9
Odense, 12 15
Drontheim, 10

**Caustic Soda—**
Antwerp, 17 t. 6 c.
Hamburg, 28 17
Abo, 3 6
Helsingfors, 9 5
Seville, 30
Copenhagen, 3 9
Gothenburg, 4 18

**Chemicals** *(otherwise undescribed)*
Antofagasta, 2 c.

**Litharge—**
Hamburg, 8 t. 5 c.
Riga, 11 16
Helsingfors, 5

**Magnesia—**
Antwerp, 2 c.
Hamburg, 5

**Naphthalene—**
Riga, 26 t.

**Paint—**
Antwerp, 1 t. 3 c.

**Potash—**
Ergasteria, ¼ c.

**Soda—**
Abo, 2 t. 3 c.
Bergen, 4 15
Rotterdam, 16 19
Abo, 2 14
Helsingfors, 3 2
Randers, 47 10
Copenhagen, 2 13

**Soda Ash—**
Bergen, 3 t. 2 c.
Gothenburg, 61 1

**Sulphur—**
Antwerp, 5 t. 1 c.
Riga, 25
Helsingfors, 80
Terneuzen, 10
Reval, 40 9
Gothenburg, 80

**Tallow—**
Hamburg, 2 t. 7 c.

**Tar—**
Abo, 17 t. 16 c.

**White Lead—**
Abo, 11 c.
Copenhagen, 2 t. 14

## GOOLE.

*Week ending November 16th.*

**Alkali—**
Ghent, 6 cks.

**Benzol—**
Dunkirk, 1 ck.
Ghent, 16 dms.
Rotterdam, 20

**Chemicals** *(otherwise undescribed.)*
Antwerp, 12 cks.
Hamburg, 5
Rotterdam, 200

**Dyestuffs** *(otherwise undescribed)*
Antwerp, 1 ck.
Ghent, 6 15 dms.
Hamburg, 21 10

**Manure—**
Hamburg, 372 bgs.
Rouen, 100
Rotterdam, 500

**Pitch—**
Dunkirk, 250 t.
Antwerp, 357

**Zinc Ashes—**
Antwerp, 35 bgs.

## GRIMSBY.

*Week ending November 19th.*

**Chemicals** *(otherwise undescribed)*
Antwerp, 6 cks.
Dieppe, 2
Hamburg, 2 15 cs.

**Coal Products** *(otherwise undesc'd.)*
Dieppe, 127 cks.

**Borax—**
Montreal, 4 t. 10 c. £127
Constantinople, 12 17

**Calcined Magnesia—**
Genoa, 4 cs.

**Carbolic Acid—**
Rotterdam, 10 t. 5 c. £451
Barcelona, 8 2 q. 14

**Castor Oil—**
C. C. Castle, 3 cs.

**Caustic Potash—**
New York, 7 t. £206

**Caustic Soda—**
Amsterdam, 111 dms.
Barcelona, 332 110 brls.
Boston, 50
Cadiz. 16
Constantinople, 14 kgs.
Galveston, 60
Marseilles, 55
New Orleans, 101
Rotterdam, 187 7
Rouen, 44
St. John's, Nfld., 6 pkgs.
Sydney, 4
Tampico, 100 kgs.
Ancona, 70
Antwerp, 4
Bahia, 5
Baltimore, 135
Bari. 127
Bombay, 25
Fiume, 43
Genoa, 70
Leghorn, 291
Malaga, 80
Manilla, 186
Melbourne, 4
Messina, 35
M. Video, 50
New York, 360 15 bxs.
Paranquay, 5
Rangoon, 14
Rio de Janeiro, 27
Salonica, 36
San Juan, 3
Seville, 35
Tunis. 11

**Chemicals** *(otherwise undescribed)*
Leghorn, 2 t. 10 c. 2 q. £89
Barcelona, 1 33
Syra, 7 2 q. 11
Kurrachee, 18 29
Oporto. 5 10
Philadelphia. 13 3 289
Ancona, 6 12
Toronto, 1 22
Naples, 1 16 59
Alexandria, 5 164
Genoa, 1 4 3 40
Jeddah, 1 38
Trieste, 1 33
Venice, 1 6 3 41
Hamburg, 3 8 3 105

**China Clay—**
Boston, 100 t.
Calcutta, 200 brls.

**Citric Acid—**
Lisbon, 5 c. 2 q. £45

**Coal Products—**
**Aniline Colours**
Madras, 1 cs.
**Aniline Oil**
Genoa 2 dms.
New York, 45
**Aniline Salts**
Barcelona, 10 cks.
New York, 4

**Cobalt Oxide—**
Seville, 1 c. 3 q. £72

**Colours—**
Genoa, 1 cs.
Rio de Janeiro, 17 kgs.
Constantinople, 1
Seville, 1

**Coppers—**
Constantinople, 4 t. 12 c. £8
Calcutta. 13 13 22

**Copper Oxide—**
New York, 9 c. £20

**Copper Sulphate—**
M. Video, 10 c. £8
Constantinople, 10 8
Ancona, 6 t. 5 2 q. 90
Danzig, 10 1 2 160
Marseilles, 103 12 2 1,560
Kustendjie, 9 16 3 150
Naples, 1 9 3 22
Bombay, 1 10 23
Rio de Janeiro, 19 1 14
B. Ayres, 2 6 30
Venice, 39 19 3 570
Vigo, 1 10 3 22
Barcelona, 5 2 2 76
Bordeaux, 100 7 1 1,500
Genoa, 34 5 490
Valparaiso, 15 226

**Corrosive Sublimate—**
Alexandretta, 1 c. 1 q. £15

**Disinfectants—**
Philadelphia, 20 dms. £7
Alexandria, 3 cs. 5

**Guano—**
Hamburg, 44 t. 6 c. 1 q. £199

**Gypsum—**
New York, 35 t. 13 c. £131

**Horn Piths—**
Antwerp, 25 pks.

**Hydrochloric Acid—**
San Juan, P.R., 20 cs. £14

**Iron Oxide—**
Philadelphia, 10 cks. £60
Singapore, 10 c. 2 q. 34

**Lead Acetate—**
Calcutta, 1 t. 12 c. £45

**Lime—**
Demerara, 204 pns.

**Magnesia—**
Ceara, 2 cs.
Rotterdam, 2 pkgs.

**Magnesium Citrate—**
Lisbon, 24 tcs.

**Magnesium Sulphate—**
Maranham, 10 brls.

**Manure—**
Genoa, 78 t. 16 c. 1 q. £235
Bordeaux, 3 10 20

**Ochre—**
Kingston, Jam., 12 brls.

**Oxalic Acid—**
Bilbao, 7 c. £9

**Paint—**
Alexandria, 35 dms.
Amsterdam, 6 4 kgs.
Aux Cayes, 5 cks.
B. Ayres, 121
Cabenda, 1
Caibarien, 7
Cameroons, 10
Cardenas, 2
Cavite, 60 dms.
Colon, 3
Guayaquil, 80 cs.
Las Palmas, 3
Lisbon. 5 12 brls.
Maranham, 4
Mayaquez, 5
New York, 8 170 kgs. 10
Para, 2
Salonica, 10
St. John's, Nfld., 7
Teneriffe. 73
Underhill, 28 12 dms.
Cadiz, 68
Cienfuegos, 6
Curacao, 25
Iquique, 102 cs. 8
Panama, 152
Porto Rico, 40
Rio Grande. 1
Santa Catharina, 52 cs. 12 34 brls.
Valparaiso, 72 cs. 15 cks. 125 76
40 dms.
Vigo, 2 brls.
Warre, 1 6 12
Zante, 5

**Painters' Colours—**
Amsterdam, 24 cks.
B. Ayres, 20 50 brls.
Ceara, 16 5 dms.
Pisagua, 60 cs.
Trieste, 40 200 bgs.
Baltimore, 317
Barcelona, 8
Lenin, 1 6 kgs. 6 dms.
Boca 895 t. 8 c 41
Bombay, 43 cs. 340
Brass. 6 12
Calcutta, 20
Cephalonia, 7 brls.
Guayaquil, 41 cs. 2
Halifax, 10
Iquique, 15
Larissa. 8
Lisbon, 1
Madras, 20 cs.
Malta, 20
Nassau, 5 132
Oporto, 10
Para, 2 10
Port-au-Prince, 330
Savanilla, 4 pkgs.

**Paraffin Wax—**
Odessa, 214 bgs. 205 c.
Venice, 6 4 cks.
Constantinople, 100 cs.
Rio de Janeiro, 25 brls.

**Phosphate—**
Barbadoes, 33 t. £175

**Phosphorus—**
San Juan, 1 cs. £14
Santiago de Cuba, 2 28

**Pitch—**
Carril, 50 brls.
Genoa, 30 cks.
Naples, 115 t.

**Plumbago—**
Bahia, 3 cks.

**Potassium Bichromate—**
Alexandretta, 16 c. 2 q. £35

**Potassium Carbonate—**
New York, 19 t. 12 c. £383
Boston, 4 1 107

**Potassium Chlorate—**
Genoa, 2 t. £113
Santiago de Cuba, 1 10 c. 100
Ancona, 8 11
New York, 5 233
Capetown, 1 46
Philadelphia, 7 10 339
Hamburg, 1 56

**Potassium Prussiate—**
Oporto, 1 c. 1 q. £6

**Potassium Silicate—**
Alicante, 17 t. 5 c. 2 q. £102

**Salt—**
Antigua, 5 t.
Barbadoes, 55
Bata, 24
Benin, 10
Boston, 320
Brass, 10
Buguma, 20
Calcutta, 5,412
Callao, 10 c
Cameroons, 47 14
Cape Lopez, 9
Conakry, 25
Galveston, 570
Gr. Bassa, 16
Halifax, 2
Matadi, 1
M. Video, 4¼
Montreal. 91
New Orleans, 991
Newport News, 32
New York. 79 18
Old Calabar, 69
Sierra Leone, 549
Trinidad, 49 19
Victoria. B.C., 103½
Amsterdam, 170
Antwerp, 430
Baltimore, 370
Bonny, 10
B. Ayres. 16
C. C. Castle, 6¼
Capetown, 5
Copenhagen, 710
E. London, 49½
Ghent, 297
Lagos, 40
Mobile, 400
Norfolk 500
Philadelphia, 65
Rotterdam, 153
San Francisco, 10
Vancouver, 100

**Salt Cake—**
Baltimore, 382 t. 4 c. £853

**Saltpetre—**
Santa Catherina, 1 t. 11 c. £37
Maranham, 15 3 q. 25
Bilbao. 2 2 9
Pernambuco, 8 15 221
Rio de Janeiro, 12 16
Maceio, 1 9 2 33

**Sheep Dip—**
Galveston, 3 t. 11 c. £170
Baltimore, 10 cks. 60
M. Video, 3 6 71

**Soap—**
Accra, 3 cs.
Alexandria, 12
Barbadoes, 1,100 bxs.
Batanga, 100
Benin, 500
Bermuda, 5
Bombay, 9 90 dms.
Bonny, 50
C. C. Castle, 70 2
Capetown, 1,350 25
Copenhagen, 80
Gibraltar, 275
Half-Jack, 9
Las Palmas, 340
Leghorn, 1
Natal, 1,050
Paranagua, 2
Rangoon, 12
Rouen, 31
Salonica, 41
St. Thomas, 200
Teneriffe, 424
Trinidad, 964
Victoria, B.C., 80
Warre, 800
Algoa Bay, 1,725
Ambrizette, 10
Axim, 20
Batavia, 2,030
Boston, 6
Brussels, 400
B. Ayres, 2
Cameroons, 4
Canaria, 230
Carthagena, S.A., 3
Demerara, 200
E. London, 1,034
Genoa, 150
Hong Kong, 500
Lisbon, 1
Malta, 20 pkgs.
Mazagan, 10
Monrovia, 30
Mossel Bay, 212
Nassau, 17
New York, 500
Pt. Elizabeth, 549
St. John's, Nfld., 150 25
Santa Cruz, 2
Shanghai, 2,570
Sourabaya, 1,500
Valparaiso, 7

**Soda Alkali—**
Buffalo, 60 brls.
Leghorn, 80
Odessa, 100
Zante, 20

**Soda Ash—**
Baltimore, 986 cks. 2,100 bgs.
B. Ayres, 100 100 brls.
Callao, 80
Napanee, 12
N York, 149 tcs. 517 3,300 bgs
Philadelphia, 279 400
Porto Alegre, 119
Seville, 9
Smyrna, 50 200
Syra, 100
Wellington, 80
Boston, 305 1,200
Dunedin, 13
Genoa, 30
Ghent, 8
Lisbon, 2
M. Video, 125
Oporto, 15
Paranquay, 30
San Sebastian, 14

**Soda Crystals—**
Gibraltar, 134 brls.
Halifax, 10 45 kgs.
New York, 100 459 cks
Portland, Or., 100
Sarnia, 25
Syra, 175
Venice, 8
Bilbao, 10
Catania, 13 1
Oporto, 13

**Sodium Arseniate—**
Rouen, 5 cks.

**Sodium Bicarbonate—**
Ancona, 116 kgs. 4 cks.
Antwerp, 60 4
Auckland, 20
Barcelona, 130
B. Ayres, 54
Catania, 80 bgs 40 20 brls
Genoa. 120
Halifax, 175
Havre, 80
Konigsberg, 100
Marseilles, 40
Naples, 50
Palermo, 20
Rotterdam, 20
Seville, 20 200
Smyrna, 110
Valparaiso, 40
Venice, 30
Wellington, 75
Dunedin, 100
Dunkirk, 7
St. John's, N.B., 200
Stettin, 81 2 cks. 3

**Sodium Bichromate—**
Ghent, 15 cks.
Terneuzen, 32
Valparaiso, 40 kgs.

**Sodium Carbonate—**
Boston. 84 brls.
New York, 150

**Sodium Chlorate—**
Boston, 50 kgs.
Ghent, 3
Hamburg, 20
New York, 100

**Sodium Silicate—**
Barcelona, 20 cks.
Callao, 16
Carthagena, Sp., 10
Oporto, 26 12 brls.
Sydney 15
Bilbao, 14
Carril, 4
Carthagena, S.A., 10
Melbourne, 19
Syra, 5

**Sulphate of Lime—**
Rio de Janeiro, 19 t. 3 c. £50

**Sulphur—**
Demerara, 7 t. 10 c. 1 q. £52
Boston, 75 389
Pernambuco, 1 19 22
M. Video, 17 2 11

**Superphosphate—**
Venice, 100 t. 1 c. 1 q. £225

**Tallow—**
Antigua, 20 kgs.
Barcelona, 3 brls.
Bayin, 2 cks. 3 cs.
Boca, 1
Cabadello, 24
Dixcove, 2
Madrid, 4
Oporto, 31
Alicante, 100
Appolonia, 1
Attoaboe, 2
Bilbao, 6
Hamburg, 9
Huelva, 8

**Tar—**
Natal, 200 dms.

**Turpentine—**
Copenhagen, 5 brls.

**Varnish—**
Alexandria, 3 cs.
Bombay, 6 brls.
Constantinople, 2
Genoa, 1
Madras, 5

**Zinc Chloride—**
Maranham, 9 c. 2 q. £10

**Zinc White—**
Cabedello, 7 kgs. 7 c.
Rio de Janeiro, 5
Galatz, 80

## HULL.

*Week ending November 26th.*

**Alum—**
San Francisco, 153 cks.

**Aniline—**
Gothenburg, 1 cs.

**Blacking Powder—**
Stettin, 112 cks.

**Caustic Soda—**
Danzig, 96 dms.
Konigsberg, 1
Libau, 179 34 cks.
Stettin, 69

**Chemicals** (*otherwise undescribed*)
Antwerp, 1 ck. 1 cs.
Amsterdam, 6
Bergen, 7 8
Copenhagen, 2 20 30 kgs.
Christiania, 4 613 slbs.
Danzig, 4 1 pkg.
Gothenburg, 50 60
Genoa, 10
Hamburg, 24 13 30
Libau, 47 120 pks.
Leghorn, 5 dms. 2
Marseilles, 10
Naples, 8
Norrkoping, 15 pkgs.
Reval, 100 45
Rotterdam, 1 1 ck. 30
Sorrie, 6
Stockholm, 1

**Cottonseed Oil—**
Antwerp, 530 c.
Amsterdam, 36
Bordeaux, 211
Copenhagen, 203
Gothenburg, 99
Genoa, 84
Hamburg, 2,216
Leghorn, 92
Marseilles, 670
Naples, 43
Norrkoping, 50
Rotterdam, 2,346
Stettin, 236

**Creosote—**
Gothenburg, 6 cks.

**Dyestuffs** (*otherwise undescribed*)
Christiania, 1 cs.
Hamburg, 2
Reval, 15 cks.
Seville, 2

**Gypsum—**
New York, 120 cks.

**Linseed Oil—**
Bremen, 192 c.
Copenhagen, 10
Christiania, 189
Christiansand, 13
Genoa, 17
Hamburg, 850
Stavanger, 41

**Manure—**
Bordeaux, 100 bls.
Ghent, 446
Rouen, 5 t. 7 cks.
Stettin, 50

**Painters' Colours—**
Antwerp, 2 cs. 30 cks.
Amsterdam, 1 10
Bremen, 1
Copenhagen, 1 6
Danzig, 3
Drontheim, 7
Gothenburg, 3 12 1 dm.
Genoa, 6
Hamburg, 2 70 8
New York, 371
Rotterdam, 4 2
Riga, 6
Stettin, 8
San Francisco, 6

**Pitch—**
Antwerp, 56 t.

**Plumbago—**
Copenhagen, 1 cs.

**Size—**
Amsterdam, 10 cks.
Flushing, 34

**Soap—**
Bergen, 20 cs.
Christiania, 77

**Tar—**
Hamburg, 10 cks.
Rotterdam, 16
Stettin, 4

**Varnish—**
Antwerp. 1 cs.
Copenhagen, 1 1 ck.
Genoa, 1 dm.
Rotterdam, 1 bl. 1

## GLASGOW.

*Week ending December 1st.*

**Acid—**
Bombay, 9 t. 1 c. £160

**Alkali—**
Demerara, 3 t. 14 c. £36

**Ammonium Chloride—**
Bilbao, 5 t. 9 c. £100
Italy, 2 50

**Ammonium Sulphate—**
Valencia, 128 t. 3¾ c. £1,277
Bilbao, 5 3 q. 60
Martinique, 410 16 4,158
Demerara, 387 2 3,976

**Asbestos—**
Demerara, £95

**Benzol—**
Dieppe, 16 pns. 35 brls. £225
Rotterdam, 50 375

**Bichrome—**
Gothenburg, 7 t. 13¾ c. £298
Antwerp, 15 3¾ 495
Valencia, 21 801

**Borax—**
Halifax, 7 t. 2¾ c. £214

**China Clay—**
B. Ayres, 94 t. 10 c. £17

**Chloride of Lime—**
New York, 9 t. 18 c. £80

**Cottonseed Oil—**
Cadiz, 19¾ c. £15. 15s.

**Creosote Oil—**
Konigsberg, 10 brls. £10
Bordeaux, 512 t. 17 c 810

**Dried Blood—**
Demerara, £161

**Dyestuffs—**
**Aniline**
Calcutta, 2 c. £30
**Extract of Indigo**
New York, 3 t. 14 c. £76
**Extracts**
Valencia, 2 t. 17 c. £62

**Farina—**
Antwerp, 4 t. 18 c. £55
Philadelphia, 3 45

**Lead Acetate—**
Bombay, 3 t. 8 c. £52

**Linseed Oil—**
B. Ayres, 1 t. 18½ c. £48
Demerara, 2 2 33

**Magnesia—**
Valencia, 2 t. 3 c. £34

**Magnesium Sulphate—**
Bombay, 13 t. 12 c. £56

**Manganese—**
Antwerp, 4 t. 17 c. £43
New York, 10 4 99

**Manure—**
Valencia. 177 t. 2 c. £1,565
New York, 3 30
Demerara, 53 10 504

**Paint—**
B. Ayres, 19 t. 10½ c. £244
Bombay, 156
New York, 65
Bilbao, 1 18 £42. 18s.
Calcutta, 2 15 45

**Painters' Colours—**
Demerara, £44. 15s.

**Paraffin Wax**
Antwerp, 1 t. 2¾ c. £28
Bordeaux, 2 11 73
Bilbao, 10 6 291
Italy, 10 17 365
Stockholm, 17½ 24

**Phosphate—**
Demerara, 29 t. 11 c. £81

**Pitch—**
Baltimore, 61 t. 19 c. £130
Gothenburg, 29 16 67
Konigsberg, 23 58
Cadiz, 509 18¾ 509

**Potassium Bichromate—**
Italy, 3 t. 15 c. £153

**Rosin Oil—**
Konigsberg, 1 brl. £1. 6s.

**Soda Ash—**
Antwerp, 5 t. 6½ c. £32

**Sodium Bichromate—**
Italy, 7 t. 4 c. £238

**Sulphur—**
Demerara, 3 t. 13 c. £24

**Superphosphate—**
Italy, 19 t. 14 c. £110

**Tar—**
Colombo, £12. 15s.
Madras, £64
Konigsberg, 464 brls. 232
Philadelphia, 26 t. 15 c. 60

**Tar and Pitch—**
Calcutta, £30

## TYNE.

*Week ending November 26th.*

**Alkali—**
Rotterdam, 8 t. 1 c.
Ergasteria, 1 3

**Alum—**
Rotterdam, 10 t.
Seville, 2 4 c.

**Alumina Sulphate—**
Abo, 7 c.

**Ammonium Sulphate—**
Hamburg, 19 t. 18 c.

**Antimony—**
Hamburg, 2 t. 10 c.

**Barytes—**
Hamburg, 5 t.
Riga, 26 10 c.
Rotterdam, 55

**Bleaching Powder—**
Antwerp, 71 t. 19 c.
Hamburg, 90 8
Riga, 110 7
Christiania, 31 2
Rotterdam, 36 18
Abo, 33 9
Sornas, 20 6
Helsingfors, 70 9
Odense, 12 15
Drontheim, 10

**Caustic Soda—**
Antwerp, 17 t. 6 c.
Hamburg, 28 17
Abo, 3 6
Helsingfors, 9 5
Seville, 30
Copenhagen, 3 9
Gothenburg, 4 18

**Chemicals** (*otherwise undescribed*)
Antofagasta, 2 c.

**Litharge—**
Hamburg, 8 t. 5 c.
Riga, 11 16
Helsingfors, 5

**Magnesia—**
Antwerp, 2 c.
Hamburg, 5

**Naphthalene—**
Riga, 26 t.

**Paint—**
Antwerp, 1 t. 3 c.

**Potash—**
Ergasteria, ¼ c.

**Soda—**
Abo, 2 t. 3 c.
Bergen, 4 15
Rotterdam, 16 19
Abo, 2 14
Helsingfors, 3 2
Randers, 47 10
Copenhagen, 2 13

**Soda Ash—**
Bergen, 3 t. 2 c.
Gothenburg, 61 1

**Sulphur—**
Antwerp, 5 t. 1 c.
Riga, 25
Helsingfors, 80
Terneuzen, 10
Reval, 40 9
Gothenburg, 80

**Tallow—**
Hamburg, 2 t. 7 c.

**Tar—**
Abo, 17 t. 16 c.

**White Lead—**
Abo, 11 c.
Copenhagen, 2 t. 14

## GOOLE.

*Week ending November 16th.*

**Alkali—**
Ghent, 6 cks.

**Benzol—**
Dunkirk, 1 ck.
Ghent, 16 dms.
Rotterdam, 20

**Chemicals** (*otherwise undescribed.*)
Antwerp, 12 cks.
Hamburg, 5
Rotterdam, 200

**Dyestuffs** (*otherwise undescribed*)
Antwerp, 1 ck.
Ghent, 6 15 dms.
Hamburg, 21 10

**Manure—**
Hamburg, 372 bgs.
Rouen, 100
Rotterdam, 500

**Pitch—**
Dunkirk, 250 t.
Antwerp, 357

**Zinc Ashes—**
Antwerp, 35 bgs.

## GRIMSBY.

*Week ending November 19th.*

**Chemicals** (*otherwise undescribed*)
Antwerp, 6 cks.
Dieppe, 2
Hamburg, 2 15 cs.

**Coal Products** (*otherwise undesc'd.*)
Dieppe, 127 cks.

# PRICES CURRENT.

WEDNESDAY, DEC. 7th, 1892.

PREPARED BY HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids:—** | | | | |
| Acetic, 25 % and 40 % | per cwt. | 7/- & | 11/- | |
| ,, Glacial | ,, | | 50/- | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 1¾ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3¼ |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 10¼ |
| Sulphuric (fuming 50 %) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11¾ |
| Arsenic, white powdered | nett per ton | 12 | 10 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 1 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 21 | 0 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & | 33/- | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 10 | 2 | 6 |
| ,, ,, (grey) Hull | ,, | 10 | 2 | 6 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6 |
| Aniline Salt ,, | ,, | 0 | 0 | 5⅞ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 3 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes:—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8 |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 0 |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 6 |
| ,, 50/90 ,, | ,, | 0 | 1 | 3 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 5¼ |
| ,, (crude 60°) | per gallon | 0 | 1 | 6 |
| Creosote (ordinary) | ,, | 0 | 0 | 1¼ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 1¾ |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 0 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 1 | 0 |
| Coke-oven Oils (crude) | ,, | 0 | 1 | 1 |
| Copper | per ton | 47 | 5 | 0 |
| ,, Sulphate | ,, | 16 | 0 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 10 | 0 |
| ,, Litharge Flake (ex ship) | ,, | 13 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| ,, *Nitrate* | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 6 | 5 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 0 |
| Naphtha (Wood), Solvent | ,, | 0 | 3 | 10 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 4 | 7½ |
| **Oils:—** | | | | |
| Cotton-seed | per ton | 18 | 5 | 0 |
| Linseed | ,, | 19 | 5 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 7 | 6 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 | 0 |
| Silver (metal) | per oz. | 0 | 3 | 2¼ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 2 | 6 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 5 | 15 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 9 | 0 |
| ,, Acetate (ex-ship) | ,, | 18 | 0 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 15 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Borate (Borax) | net, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | net pr. ton (10 ton lots) | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, | 11 | 5 | 0 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, | 10 | 5 | 0 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, | 9 | 2 | 6 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, | 8 | 17 | 6 |
| ,, Bicarbonate | ,, | 6 | 12 | 6 |
| ,, Hyposulphite | ,, | 7 | 10 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 10½ |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¾ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 12 | 6 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7¼ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7½ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone: Best Quality (nominal) | ,, | 4 | 10 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 94 | 0 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 18 | 12 | 6 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

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# HEMICAL TRADE JOURNAL

AND

## OIL, PAINT and COLOUR REVIEW.

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## CURRENT TOPICS.

### THE MINERAL MINER AND HIS RIGHTS.

A VERY interesting and instructive point, and one, moreover, which we believe has never been raised in any Court before, was decided recently in connection with the action brought by the Ruabon Brick and Terra-Cotta Company against the Great Western Railway Company.

Hitherto in cases of a somewhat similar nature the argument had been based on the railway company's right to support. In the present case, however, the contention was against the right of the Ruabon Brick Company to move the line of the Railway Company on the surface in order to work the minerals lying beneath.

According to the 77th section of the Railway Clauses Amendment Act, a railway company is not entitled to the minerals underlying their property, unless the purchase of such minerals be expressly mentioned in the original deed of conveyance; and, moreover, the owner of such minerals is entitled under section 79 to work his property in order to win minerals in accordance with the customary methods for so doing, provided notice is given to the railway company, under section 78 of the Railway Amendment Clauses Act, which gives to the railway company the option of buying the minerals forthwith.

In the case in question the railway company did not purchase the minerals underlying their land, which were valued at £100,000., but simply made an agreement that if the plaintiffs worked their minerals the railway company should have the right to erect pillars or columns to protect the railway and works.

Notice was therefore duly given by the plaintiffs, under section 78, of their intention of working the minerals underlying the railway, and about seven months later they began actual operations, in accordance with their rights under the previously cited 79th section. This action led to litigation, an account of the proceedings of which are given in the *Journal*, No. 287, p. 321, and in the columns of this issue.

It was admitted by the railway company that the plaintiffs were entitled to work the underlying minerals, but it was on the contrary contended that they had no right to come upon the company's line to do so. Judgment, however, was given against the railway company, who thereupon appealed.

After hearing the appeal, it appears that their Lordships upheld the judgment of Mr. Justice Kekewich, that the plaintiffs were entitled to come upon the defendants' land and work the minerals from the surface, even if by so doing they let down the surface and destroyed the property of the railway company.

The importance of such a decision to mineral merchants, who are frequently owners or part owners of mineral deposits is imperative, and should receive special attention on their part, as it clears the ground of *impedimenta*, which might have told seriously against them in future disputes of this kind,

A LEAF OUT OF THE WRONG BOOK.

The complaints which are constantly being lodged against the nature and reliability of the analyses made by the analytical department of Somerset House, we are fully aware, arise out of a concatenation of circumstances which justify such exprobations, for we have just recently had further instances which give room for reasonable complaint.

It is by no means satisfactory for an official analyst who has to act as a referee under the Adulteration Acts to give a testimonial as to the purity of any article of commerce, especially when such an article is stated not to be injurious to persons of delicate health, despite the fact that the said article has been found, when examined by independent analysts, to contain a very considerable amount of boracic acid.

If the poor pay which the Government analysts get has anything to do with their being allowed to testify as to the purity of an impure article, when they are supposed to act as referees (and this explanation has been suggested), all we can say is that such a statement is contrary to the policy of the Somerset House officials, as it transpires that they recently undertook and performed certain analyses at a figure which cut the ground from under the feet of any analyst in public practice. If they can afford to do this, we venture to suggest that the remuneration of their own analysts should be of a more generous nature.

We believe, however, that when enquiries were made touching the point of the fees charged for the analyses just referred to, it was stated that the case was an exceptional one, and they only charged what it actually cost for chemicals. If this was so, the margin left for profit between the figure computed by Somerset House for the cost of chemicals alone, and the charges made for similar work by several analysts of repute, is so small that we can only wonder how they manage to float themselves over the quicksands of the bankruptcy court.

But we do wonder—have wondered—and shall continue to wonder over many things if they have their own way at Somerset House, a state of things which will certainly not be altered unless analysts co-operate and retain the vantage ground which they have gained.

A repetition of a case similar to that which happened at Greenock a short while since is hardly likely to further this purpose. Owing to an analyst leaving part of the work connected with a prosecution for milk adulteration to his assistants, the case was virtually lost, and the defendant was assoilzied from the charge.

His Lordship the Sheriff Principal, emphasised the fact of the analyst having stated that the quantity of solids, not fat, was the only test for ascertaining whether water had been added to sweet milk; while he admitted not having personally attended to the analysis, having confined his attention to estimating the fat and checking the calculations. In other words, the actual ascertainment of the factor which was of vital importance to the question—namely, the quantity of solids, not fat, contained in the samples—was left to assistants or apprentices, not one of whom was called to speak to the way in which the operation was carried out or to the result obtained. This case is an unfortunate one, as it enables Somerset House to repeat the five-fingered exercise which the Sacristan of Ingoldsby fame is stated to have performed on the end of his nose, and should act as a hint to analysts as a body, to take every precaution to ensure an instance such as the foregoing being the exception to the *rule. Whether it is, or is not,* it would be invidious to suggest, but we trust that the tone of the profession, whic Institute of Chemistry seems so commendably anxi raise, is already sufficiently high to warrant any aspe on this point being treated with silence, for if not it i time it was.

## SOCIETY OF CHEMICAL INDUSTRY.

SCOTTISH SECTION.

THE second meeting of the session took place in Edinbu Tuesday the 6th inst.; Mr. C. A. Fawsitt presiding. T business was a discussion on the paper of Mr. D. R. Steuart, Glasgow at the November meeting, on "Flash-point and I Burning of Mineral Oil." Mr. Steuart opened the proceed reading a supplementary paper on the subject. He had been further experiments, and was more than ever convinced of the of the existing rule, and of the untenable character of Abel an wood's conclusions come to in their report. A flash-point not l least, than 100°, was necessary for reasonable safety. A new that effect would not increase the price to the poorest buyer b than one penny per gallon. It was no question of trade protect of natural law and moral law. He did not think the Scottish oil industry was really in danger of extinction, but if nothing but tion could save it, he would rather let it go.

Mr. J. Gray, chemist to the Clippens Oil Co., agreed fully w Steuart, and quoted an opinion of Mr. Boverton Redwood seemed flatly to contradict the Abel and Redwood joint report licensed 73° as safe. Since Mr. Steuart's paper was read a nu oil lamp explosions had occurred, attended with serious loss of l caused by low flash-point foreign oils (not paraffin oil, althou monly so styled in ordinary newspaper reports), and yet the Secretary writes to Mr. Steuart that he sees no warrant for a re nation of the subject. Mr. John Young, of the Linlithgow O pany, also entirely agreed with the paper, and called for im action in the interests of public safety. There was no question protection involved. In America the governments of the variou did not permit the use of petroleum of anything like so low point, although allowing the inflammable stuffs to be exported countries and do damage there. He had himself heard Mr. Bed the Standard Oil Company of America, when in this country, amazement at the British Government permitting free burning dangerous oil, making the remark that the pernicious laxity sug country or race not highly civilised but semi-barbarous. The Kingdom was, in fact, used by these foreign producers as a pr refuse heap for what they were not allowed to dispose of at ho the time had come when this had to be put an end to. An ob minimum flash-point of 100° was required to provide reasonable it would not raise the price of the poor man's lamp oil more penny a gallon—probably the rise would be less. The chairm stated his impression that Abel and Redwood did not acc responsibility as to the safety of 73° oil, but rather founded the on the approval of that figure by the Scottish Mineral Oil Ass Professor Crum-Brown also deprecated any indiscriminate co tion of Sir Frederick Abel as an eminent and conscientious He desired further inquiry, but thought it should be in the h general business men, with instructions to take the evide opinions of chemists. Mr. J. Stuart Thompson, Uphall, den the Scotch Oil Companies ever had, at any time or in any way, that a 73° flashing-point oil minimum was safe. On the contra had voluntarily adopted 100° for their own home produ Stevenson Macadam condemned the present attitude of the ment, and called for 100° being fixed as a minimum. Dr. chemist to the Highland Society, Dr. Falconer King, Edinbu Analyst, and Mr. W. Ivison Macadam, Edinburgh, spoke in f a change; and finally it was decided that the Committee of th should consult as to advisable steps being taken for the bringi of action, and report results to the January meeting, which is to in Glasgow. It was suggested that a movement might be either through the London Council of the society or thro Edinburgh Chamber of Commerce, the Glasgow Chamber be as too stiff-necked for anything like hopeful co-operation.

The remainder of the discussion will appear next week.—ED. *C. T.*

DEPRESSING OUTLOOK IN THE COAL TRADE.—The sh prices paid by the various railway companies in their coal cont next year are causing coal masters to anticipate a reduction o and a step in that direction has already been made in the Sout shire district. In 1890 the Great Eastern Railway had to pay ton; in 1891, 10s. Next year they will only pay 9s. per ton less per ton than in 1890.

## COMPOSITION AND ANALYSIS OF SOAP.

By Dr. H. T. Vulte.

(*Concluded from page* 353)

DETERMINATION OF ROSIN.

DING'S method for the determination of rosin depends upon fact that silver resinate is quite soluble in ethyl ether, silver compounds of the fat acids (with a partial exception in f the oleate) are but slightly so. Dissolve about 0·5 gramme ted fat acids and resin in 20 c.c. of strong alcohol, and add a ess of soda solution, using phenolphthalein as indicator. Boil minutes to insure complete saponification, cool and mix with graduated cylinder (stoppered) making bulk up to 100 c.c. olution add 1 gramme of finely powdered $AgNO_3$ and shake inutes or more. After settling draw off 50 c c. of the solution if necessary) into another cylinder. Insure complete precipi- again adding a little powdered $AgNO_3$ and shaking. Then c. of dilute HCl (1 :2) to decompose the silver resinate. Allow nd then draw off an aliquot part of the ethereal solution and in a tared dish. From the weight of resin and oleic acid ined deduct 0·00235 gram. (oleic acid) for every 10 c c of aken. The remainder represents resin.

ell's method for the estimation of rosin in its mixtures with s. When fatty acids are dissolved in absolute alcohol and ith hydrogen chloride, their ethereal salts are formed. Rosin the same way undergoes no change. On this principle the s based his process, which may be conducted either gravi- or volumetrically. The gravimetric method is carried out : 2 or 3 grms. of the mixture of fatty acid and rosin is dis- ten times its volume of absolute alcohol, and dry hydrogen s passed through in a moderate stream, the flask being placed in a h water to keep it cool. The gas is rapidly absorbed, and t 45 minutes the ethereal salts separate and float on the solu- ter waiting for half an hour longer, the liquid is diluted with its bulk of water and boiled until the acid solution is clear, al salts, with rosin in solution, floating on top. To this is ne light petroleum, and the whole transferred to a separating e flask being washed out with light petroleum. The acid hen run off, and the light petroleum solution washed once h water and then treated in the funnel with a solution of 0·5 potassium hydroxide and 5 c.c. of alcohol in 50 c.c. of water. is immediately saponified, and the two layers separate com- The rosin soap solution can then be run off, and the rosin l, as usual, by the addition of an acid. The first stages of the ic method are similar to those of the gravimetric, with the that the contents of the flask are washed into the separating th ether instead of light petroleum, and the ethereal solution is oughly washed with water until all soluble acidity is removed. f neutral alcohol is then added, and the solution titrated with solution of sodium hydroxide. The test analyses are satisfac-

explanatory notes should be added :

case of transparent soaps, and possibly some others, the loss by 100° C., though usually reckoned as water, may be partly Drying at 120° will drive out essences (perfume) as well as To some soaps Carnauba wax end vaseline or products from n are sometimes added. The effect of the Carnauba wax is to he presence of the petroleum's compounds by rendering them n alcohol or in water.

ative tests for free alkali or alkali carbonate in soap may be touching a freshly cut surface with a drop of phenolphthalein or of mercuric chloride. The former gives a purplish-red spot, a brownish or reddish spot if either are present. If not the hite.

lycerine Muters' copper test is frequently used. It depends principle that glycerine (in common with many other organic es) will prevent the precipitation of a certain proportion of drate by alkaline hydrate. To the aqueous solution freed from , a strong solution of potassium hydrate is added, and then $SO_4$ solution until a fair amount of insoluble cupric hydrate insoluble. The solution is made up to a known bulk, well nd set aside to settle ; an aliquot portion is then drawn off, a ght excess of $HNO_3$ added, and then a known volume of , and the solution titrated with KCy. The results are com- th similar results obtained on a solution containing a weighed of glycerine.

examination of that portion of the soap insoluble in alcohol tion of the water solution therefrom with $\frac{N}{2}$ or $\frac{N}{10}$ acid, using range as indicator, will give the soda combined as carbonate, and silicate in the soap.

parent soaps, sometimes sold as "glycerine" soaps, may con- ch cane sugar and practically no glycerine. The cane sugar may be determined by inversion with acid and using the Fehling test. In such cases the proportion of water is usually lower than with genuine glycerine soaps.

Gelatin, if present in soap, may be determined in the portion insoluable in alcohol, by combustion with soda lime, or applying the Kjeldahl method for nitrogen.

In calculating the results of the analysis it must be remembered that in the soap the fatty anhydrides are combined with sodium, whereas in the process of analysis these are determined as fatty acids and soda respectively. The result is that the sum of the fat acid and soda obtainable from a soap is two or three per cent. more than the actual weight of the soap. To get approximately the fatty anhydrides the weight of the fat acids is usually multiplied by 0·97. It is best to report the percentages of both fat acids and fatty anhydrides.

Table of analyses of some American soaps made by the author.

Fresh water soaps.

| | Fats and rosin. | Free alkali. | Combined alkali. | Alkali carbonate. | Water. |
|---|---|---|---|---|---|
| 1 | 53 87 | — | 6·17 | 2·57 | 36·33 |
| 2 | 66·24 | 0·36 | 6·82 | — | 28·00 |
| 3 | 59·6 | — | 6·05 | 2·8 | 28·13 |
| 4 | 65·7 | — | 6·66 | — | 26·82 |
| 5 | 69·54 | — | 7·67 | — | 24·55 |
| 6 | 61·9 | — | 6·62 | 3·61 | 27·44 |
| 7 | 70·38 | — | 7·56 | 0·17 | 16·96 |

Nos. 2, 4, 5 are good, 1, 3 and 6 are poor.

Salt water soap :

| | 1. | 2. | 3. |
|---|---|---|---|
| Water | 25·5 | 53·49 | 46·05 |
| Combined alkali | 7·84 | 5·23 | 7·04 |
| Alkali carbonated | 1·36 | 4·61 | 7·27 |
| Fats (cocoanut oil) | 61·25 | 34·14 | 45·99 |

No. 1 is a tallow soap and would not wash in salt water.

No. 2 is a standard salt water soap.

No. 3 consists of cocoanut oil and tallow.

## THE CITY AND GUILDS OF LONDON INSTITUTE.

On Monday last the distribution of the prizes in connection with this Institute took place in the Merchant Taylors' Hall London.

The Lord Mayor presided and in opening the proceedings, heartily welcomed the students of the institute to the City. The guilds of the City of London, he said, were always ready to do everything in their power to further the cause of technical education, which was of so much value to the public generally. English people now were much more in favour of technical education than in former days, and the City Guilds Institute had established colleges all round London, having that object in view.

Mr. John Watney read the annual report of the Institute's colleges and schools, and said that the highest award the Institute offered to any of its students on the completion of their course of study was the diploma of "Associate of the City and Guilds institute," which was conferred upon those who had matriculated at the Central Institution, and had successfully passed through the three years' course of study prescribed in one or other of the departments for preparing students to enter the profession of civil, mechanical, or electrical engineering and technical chemistry. In July last 23 students gained that distinction, the highest place being taken by Mr. F. H. Hummel. Certificates had also been awarded to 17 students. At the matriculation examination, held in September, for the current session, there were 107 candidates, of whom 70 succeeded in passing. That was the highest number recorded since the opening of the college. At the Central Institution, Finsbury, there were 860 evening students on the register, the electrical department attracting the greater number of students.

Dr. William Anderson then presented the prizes, and afterwards addressed the students. He said that since he became concerned in manufacturing enterprises he had felt a keen interest in the culture of their intellectual population. The students of the present day enjoyed extraordinary advantages as compared with the young men of the past generation. Every thoughtful man must look with pleasure and hope upon the noble work which was being done by the City and Guilds of London Institute, and by other bodies in furthering technical education throughout the length and breadth of the land. In nearly all the towns men and women were improving their knowledge in almost every branch of art and science to which their necessities or their inclinations led them. He had come to the conclusion that the aids given now-a-days to manufacture and commerce were absolutely indispensable if England was to hold her own, and to overcome the difficulties which high-priced labour, the restrictions of the Legislature, and the interference of trade organizations imposed.

## THE SALFORD CORPORATION AND THE JOINT COMMITTEE.

AT the meeting of the Salford Town Council on Thursday last, Dec. 8th, Mr. Alderman Bailey inquired whether there was likely to be any clashing between the River Irwell Conservancy Committee of the Corporation and the Mersey and Irwell Joint Committee. What had appeared in the newspapers seemed to indicate that this would be so.

Mr. Alderman Walmsley, chairman of the Irwell Conservancy Committee, replied that the position of the representatives of the Corporation on the Joint Committee was anything but an agreeable one. The difficulty seemed to hinge on this point, that the Joint Committee thought the Salford Corporation must surbordinate its actions and the exercise of its powers to consent obtained from the Joint Committee. Now it was on the distinct statement of Mr. Hibbert at the opening meeting, held at the Assize Courts, that the Salford Corporation would be allowed to retain its individual liberty of action, that the representatives of the Corporation withdrew the opposition which they would otherwise have offered to the scheme for the appointment of the Joint Committee. From what took place on that occasion, from the provisions of the Act of 1876, and from what was stated in the Act of 1892 forming the Joint Committee, it was clear that Salford had still its own *locus standi* and its right of independent action. It had been said that Mr. Groves and himself had assented to an agreement that none of the authorities represented on the Joint Committee should take action against anybody without the assent of the Joint Committee. Neither Mr. Groves nor himself remembered doing anything of the kind, and they were under the impression that the resolution must have been arrived at before they entered the meeting or after they left. They could not honestly or consistently have supported such an agreement. The Joint Committee appeared to be very anxious not to take action such as would embarrass the manufacturers who were polluting the river. He did not wish to use unduly strong language, but he could not help regarding this as a kind of bastard philanthropy. It was time that some philanthropy and sympathy should be extended not to the manufacturers, who have been offending so long, but to the working people who would have to live in the vicinity of the mass of pollution that was being poured into the Ship Canal docks. He said at the meeting of the Joint Committee on Monday Dec. 5th, and he said again now, that if such a state of things was allowed to continue the population of Salford would be decimated. That being so, the Corporation must continue to exercise its authority, whatever the opinion of the Joint Committee might be. He hoped the Conservancy Committee would receive the support of the Corporation in the position it was taking up.

## A NEW FIBRE FROM CUBA.

THE wide demand for good fibre and the large number of useful fibre-bearing plants that are to be found in various parts of the world have always formed an incentive to the production of the most perfect means of preparing the fibre of the most promising of these plants for the market. Such is their diversity of character, however, that, while some have readily yielded their fibres to the means employed and have long since become ordinary staples of commerce, others have, to some extent, resisted the ordinary processes of decortication. This is due to the fact that the latter require more or less special treatment in order to enable their fibres to assume their proper commercial position. Amongst other fibre-bearing plants that have attracted attention of late is one which grows in wild profusion in Cuba. It belongs to the aloe species, and is a variety of the plant from which the Sisal hemp of Mexico is produced. The excellent fibre obtainable from the Cuban plant led to endeavours being made some little time since to bring it under treatment, with a view to placing its fibre on the market. Circumstances, however, did not at first favour the attempts to utilize the plant, inasmuch as the mucilaginous substance in which the fibre is embedded in the leaf contains an acid. Now, in all fibre-bearing plants in which this condition obtains, the fibre, when extracted in the ordinary way, is rapidly acted upon by the oxygen of the atmosphere. The chemical action thus set up results in the discolouration of the fibre and materially reduces its value in the market. By decorticating the Cuban and other fibres liable to deterioration from this cause in a bath of gently flowing water, acting in a particular manner, it is found that the acids and other deleterious ingredients are effectually removed, and that the fibre is produced in all its natural lustre, whiteness, and strength.

### ANOTHER DECORTICATOR.

The success which has attended the preparation of this Cuban hemp has been attained by the use of a machine which is the invention of Mr. W. E. Death, who has had many years experience in the treatment of fibrous plants. Briefly stated, this machine consists of a traveling feed table, fitted with a clip, in which the ends of the leaves are gripped, the leaves being laid lengthwise. Upon the table being set in motion the leaves are carried forward to a series of beaters which are fixed around the periphery of a drum. This drum revolves in a semi-cylindrical tank, into which a stream of gently flowing water is admitted at a given level. Upon the exact point of admission of the water depends the success of the machine, it being a *sine quâ non* that the water must impinge upon the leaves directly after they have been broken up by the beaters. If the water is applied before the leaves are thoroughly broken the operation is found to be ineffective. And here it may be observed that this is not the first machine in which water is used to assist in the process of extracting the fibre. The present machine, however, is a distinctly new departure, the water being brought to bear upon the fibre in an entirely different manner. By Mr. Death's machine, the fibre having been deprived of all extraneous matter for about two-thirds of the length of the leaves, the latter are drawn back by the clip, from which they are automatically released, the refuse being carried away by the running water. The leaves are then reversed end for end, the ends of the exposed fibres being placed in the clip, the machine started, and the untreated portions of the leaves passed under the beaters, the fibres being then drawn back by the clip and released at the end of the travel. A fresh charge of leaves is then placed in the clip and the process of decortication is proceeded with as before. The work is done with great rapidity, and the fibres are produced in their natural colour and in good merchantable condition, and, moreover, by one process, no bleaching or after treatment being required. The machine is capable of treating almost every kind of fibrous plant, either leaf or stem, with equal facility.

Operations have hitherto been carried on in Cuba by preparing this new fibre from the wild plant, but the success which has attended the present efforts has led to extensive plantations being laid out. It is therefore anticipated that a considerable harvest will be ready for treatment next year, which will enable the fibre to be placed upon the market in large quantities and to take its place, in the ordinary course of trade, with the other fibres of commerce. So far, according to the *Times* there have been about 15 tons of the Cuban hemp sold in the London market, the price realized being about £50. a ton, as against Sisal hemp, which at the present time fetches about £30. a ton. The special use for which this article is stated to be admirably adapted is the manufacture of fine cordage, floor coverings, and for fancy purposes.

## THE AGRICULTURAL CONFERENCE.

### THE PREVENTION OF ADULTERATION.

DURING the discussion of this question at the Conference held last week, Professor Long expressed an opinion that better steps ought to be taken to prevent the adulteration of dairy and farm produce. He further said :—Several articles of farm produce which came from abroad, such as meat, butter, beer, and milk, were not pure and genuine. Margarine from Chicago was undermining and destroying the butter industry of this country. He had no objections to margarine so long as it was sold as margarine and at the price of margarine. When in Denmark a law was passed compelling the retailer to sell his butter from one counter and his margarine from another, the principal manufacturer of margarine in Denmark came to England, and now was making every day 20 tons of this stuff. In France the Legislature was about to enact that all margarine for the home market should be free from colouring matter; but as England was their largest customer for this commodity margarine for the English market might still be coloured. He saw the shops all full of foreign farm produce, and that must be altered. It was urged that foreign meat ought to be labelled. He thought it would be far better if the English farmers labelled their meat; for the butcher would take care to retain the label, and the consumer would know that all unmarked meat was impure or foreign. He was very sorry to see the treatment extended to a large body of dairy farmers who recently waited on Mr. Herbert Gardner and Sir Walter Foster. They were received with remarks worthy of a grocer on the one hand, and of a dairyman on the other. Sir Walter Foster said that they ought to see that the inspector did his work more carefully; and Mr. Gardner, who was willing, he believed, to do his best, said that he would not be a party to anything which would remove the handsome appearance of margarine in the eyes of the working man.

EXPLOITING NEW COAL BEDS.—Some time ago, as the result of a trial hole being sunk on the estate of Dr. Bennett, of Buxton, at Barmoor Clough, near Chapel-en-le-Frith, a seam of coal of considerable thickness was found. It is understood that a colliery shaft is now to be sunk at the spot.

## FERTILIZERS IN THE WEST INDIES.

VICE-CONSUL Wright of America in his report for the year ending March 31st, 1891, states that there was imported into Jamaica fertilizers to the value of £2,758. of which £2,375. in value came from the United Kingdom, £81. from the United States; while for the year ended March 31st, 1892, the total importations amounted to £3,918. distributed as follows: From the United Kingdom, £3,905.; from the United States, £49.; and the remainder from the West Indies.

It will be seen from this, says Mr. Wright, that although the use of imported American fertilizers is exceedingly small, it is on the increase.

The explanation of the practical monopoly of the United Kingdom in this trade is explained by the fact that the English manufacturers of commercial fertilizers hold themselves in readiness to analise samples of the soil, in order to arrive at the chemical deficiencies thereof, and then compound the fertilizers to meet such deficiencies. Intelligent and practical users of fertilizers assure him that if American manufacturers will hold out the same inducements in regard to analyzing the soils and manipulating the manure to supply the requirements thereof, and in addition thereto will sell at the same price fertilizers of the same commercial value, the item of freights being so much in favour of the United States, her manufacturers can turn the tide in their favour.

Although the area of Jamaica is only 4,193 square miles, it contains a great diversity of soils, and it would therefore require the honest and intelligent preparation of fertilizers on the part of American manufacturers to obtain and hold this trade. And he remarks that the principal crops (cane and bananas) being very exhaustive to the soil, it is a well recognised fact that in a few years at most fertilizing must be largely resorted to, as the lands are virtually worn out, and the system of the past in turning out old lands and taking in new can be no longer resorted to, as the lands have all been under cultivation, that is, the kind adapted to the crops named, which as before stated, constitute the principal cultivated crops.

He has been unable to ascertain the chemical value of the fertilizers imported, the quantity, or their selling price.

### FERTILIZERS IN MARTINIQUE.

There is annually imported 20,000 to 25,000 tons of nitrates, phosphates and ammonia. About one half is in a prepared state, the rest in crude form, which is mixed here by a firm engaged in that business with a capital of 320,000 francs. The firm is entitled Compagnie des Engrais de la Martinique. The factory is in the city of St. Pierre.

The material is all imported from the United Kingdom, and is packed in strong bags or barrels. The finished product is used for sugar cane only. Its analysis is as follows.

*Cross's special cane fertilizer*—nitrogen, equal to 9 per cent. of non-volatile ammonia, 19 to 20 per cent. of soluble phosphates, and 3 to 5 per cent. of insoluble phosphates, besides 3 to 4 per cent. of soluble salts of potash and alkaline salts.

*Cross's early potassic cane fertilizer*—nitrogen in various forms equal to 6½ per cent. of ammonia; phosphoric acid, soluble, equal to 15 to 16 per cent. of phosphate rendered soluble; phosphoric acid, soluble, in finely prepared form, equal to 5 per cent. of phosphate of lime; potash equal to 10 per cent. of sulphate of potash.

There are no duties on fertilizers and wharfage is nominal. Small lots of sulphate of ammonia and nitrate of potash have been recently imported from the United States through a commission house.

The price laid down at Martinique, is about 230 to 235 francs per ton of 2,240 pounds for Cross's and other English manufacturers' fertilizers.

The quantity used per acre varies. The soil in the uplands being loose and rains frequent, 250 pounds to the acre is used; the lowland being more compact and clayey, 200 pounds to the acre is all that is required. If subsoiling was more practised by planters, a less quantity would be necessary.

The terms on which the business is carried on are as follows: Drafts of Colonial Bank of London agency at Martinique of New York or London at 5·25 francs to the dollar on delivery.

It would appear that, with cheap material in the United States and the short distance to transport the finished article, the United States should command the market, as they do for yellow pine lumber, flour, corn, lard, and meat products.

### FERTILIZERS IN ST. THOMAS.

It is further stated that there is no demand for fertilizers, nor are there any imported to the islands included within consular jurisdiction of Mr. Wright.

Mr. Joseph L. Taylor, the consular agent at Santa Cruz, reports that—

Many years ago there was some guano and patent fertilizers imported from England; but of late years, owing to the low price of sugar, the planter has been satisfied if he could provide sufficient manure.

This island is nonproductive, and very little cultivation is carried on in the island of St. John; but there may be a field for trade in fertilizers in the island of Santa Cruz if a proper canvass be made by dealers.

### FERTILIZERS IN ST. CHRISTOPHER.

The greater part of the commercial fertilizers used on this island are imported from Great Britain for various reasons. The two strongest reasons are the following: First, nearly all the landowners reside in Great Britain and are largely controlled by home influence; second, a few years ago the English fertilizer companies sent out a chemist who analysed the soil and prepared a special formula of a fertilizer for the sugar-cane plant, which is very popular here and sells at the highest price £12. per ton.

In referring to prices, the showing is largely in favour of the United States; and the freights from New York to St. Christopher are only one half of what they are from London. Now, with a little enterprise and industry on the part of fertilizer manufacturing companies in the United States, they could very soon have all this trade. They must not forget that the island of St. Christopher is apparently one sugar-cane farm. The different estates are not divided by any fences, simply turning rows and ditches.

Having travelled all around the island several times it seems to be nothing but sugar-cane plantations, all well cultivated.

The farms require a good sugar-cane fertilizer, and if our manufacturers will send down a chemist, analyse the soil, and prepare as good a fertilizer as the special fertilizer imported from London, they will control this trade, as the freights from New York, as heretofore stated, are only one-half what they are from London.

The freights should be very cheap from Savannah and Key West, as it is only 800 miles from the former and 600 miles from the latter place to this island.

The United States should establish a weekly mail from Key West to these islands. We are here only 600 miles from America, and cannot get a regular mail, owing to the employment of the Quebec line of Canadian vessels hailing from London, which is all the time fighting for freights and is perfectly indifferent about the United States mails. At times (twice) we have had two mails within forty-eight hours, at other times not a mail in a month.

### FERTILIZERS IN TRINIDAD.

Pursuant to instructions contained in Department circular dated June 2nd, 1892, calling for a report upon the trade in commercial fertilizers in this consular district, it has been observed in respect to the three islands constituting the district, that the only substantial opening for American trade in fertilizers is in the island of Trinidad. The industry of Grenada is principally limited to cacao, and the sugar industry in both Grenada and Tobago is comparatively of not much importance.

Trinidad, however, imported in 1890 fertilizers (or manures, as is the custom house designation) to the value of £40,892. The importations last year (1891) were considerably less, being valued at £19,867.

The value of importation for 1890 and 1891 was as follows:—

| From | 1890. | 1891. |
|---|---|---|
| United Kingdom | £40,682. | £19,135. |
| British West Indies | 5. | — |
| British Guiana | 200. | 8. |
| United States | 5. | 558. |
| France | — | 166. |
| Total | £40,892. | £19,867. |

While it will be seen that the United States got somewhat of a foothold last year, it is still not fairly in the market. Within the last few months several American manufacturers of fertilizers have made enquiries of this consulate and have otherwise indicated a disposition to extend their trade to Trinidad, and it is reasonable to expect that, within a few years, the above figures will undergo a great change in favour of the United States.

The only crop of Trinidad worthy of consideration in this connection is the sugar cane crop. Imported manure might be of service in promoting the growth of cacao trees and cocoa-nut trees, it has not transpired that any has been used for that purpose, except in the way of experimenting however.

About seven-eighths of the sugar cane crop belongs to residents of the United Kingdom, who obtain their fertilizers through their own agents.

The largest local planter uses principally a mixture of his own, composed of two-thirds ground phosphate and one-third ammonia. Both ingredients are imported in casks. The first cost, net, of ammonia in London is, say, about £10., and delivered on wharf in Port of Spain (Trinidad) say, £12., including freight, casks, lighterage, and all other expenses. The ammonia is guaranteed to be 24¾ per cent., which is understood here to be about as pure as is ever manufactured for fertilizing purposes. The ground phosphate costs, net, in London about £1. 18s. 2d., and delivered here on wharf, including all expenses and charges, say, £3. 14s.

There are no tonnage or lighthouse dues at this port, and all manures are entered free of duty.

FERTILIZERS IN THE BAHAMAS.

There is no importation of fertilizers into this colony from Europe. A considerable quantity of guano or cave earth—a rich bat deposit found in caves on the out islands—exists in this colony. Prior to 1885 from £2,400 to £3,000. worth of this deposit was exported annually, most of it going to the United States to be mixed with other fertilizers. Since 1885 the policy of the colonial government being opposed to the removal of any fertilizers from the islands, exportations of this guano have been prohibited by law, with a view to encourage its use by local agriculturalists. It is not, however, much used, being, perhaps, too rich in its natural state.

Within the last three or four years, however, a demand has arisen for fertilizers in the cultivation of pine apples, and foreign fertilizers have been introduced with excellent results, the fruit being larger and of beter flavour, and old, worn fields developing new life and vigour.

These fertilizers come entirely from the United States, and the trade is rapidly increasing. In 1891 fertilizers to the amount of 2,175 barrels, worth about £2,400., were imported from the United States and used during the year. There will probably be a decided increase in the amount imported in 1892.

There is no reason to anticipate that manufacturers of fertilizers will meet with any European competition here.

# Reports of Companies.

## DIVIDENDS.

THE CAPE COPPER CO., LIMITED, has declared a dividend of 1s. 2d. per share on the cumulative preference shares, and of 1s. 3d. per share on the ordinary shares.

THE COPIAPO COPPER MINING CO. has paid another substantial dividend of 2s. per share, making a total dividend of 10 per cent. for the year.

## THE ELECTRIC CONSTRUCTION CORPORATION, LIMITED.

The report of the Electrical Construction Corporation, Limited, states that, notwithstanding many unexpected difficulties which were encountered during the last 12 months, the result of the year's working shows a satisfactory profit balance. After deducting the expenditure on plant, machinery, and patents, paying the interest on debentures and other loans, and placing £10,000. to a reserve for bad and doubtful debts, there is a surplus, including £10,721. brought over, of £57,415. to be dealt with. The contracts with the Liverpool Overhead Railway Company, Limited, and the South Staffordshire Tramways Company have been nearly completed. The Liverpool Overhead line is expected to be in full working order by the end of the year, and the Staffordshire Electric Tramway has already been passed by the inspector of the Board of Trade, who has expressed himself thoroughly satisfied with the system employed and the work done by the Corporation. A very successful system has been carried out for lighting the city of Oxford, and the directors have every reason to believe that these important works will serve to bring large additional contracts to the Corporation. With reference to a financial understanding arrived at with the Electric and General Investment Company, Limited, the directors do not propose that any dividend be paid on the ordinary shares for the past year, but recommended that the dividend at the rate of 7 per cent. per annum be paid on the preference shares up to September 30 last; that £30,000. be placed to a suspense account; and that £26,862. be carried forward.

# Legal Intelligence.

## SUPREME COURT OF JUDICATURE.

### COURT OF APPEAL.

(*Before Lords Justices Lindley, Bowen, and A. L. Smith.*)

THE RUABON BRICK AND TERRA-COTTA CO. *v.* THE GREAT WESTERN RAILWAY CO.

THE hearing of the appeal made in this case from the decision of Mr. Justice Kekewick (*C.T.J.* 287, p. 321) came on for hearing last week.

The plaintiffs were represented by Mr. Hopkinson, Q.C., and Mr. F. Dodd, while the railway company were represented by Sir H. Davey, Q.C., Mr. Cripps, Q.C., and Mr. Medd.

The contention in the case was whether the plaintiffs had a right to work their minerals on the surface so as to interfere with the sleepers and rails of the railway company, whose permanent way traversed the land worked by the plaintiffs.

In delivering judgment, Lord Justice Lindley said this was a case raising an important question, he did not say actually novel, but the importance of which appeared in a more pronounced way in this case than in any previous case. The rights of the parties depended on whether the ordinary common law applicable to contract of sales and conveyances applied, or whether the rights of the parties were regulated by statutory enactments. That depended much on the construction of the agreement that had been made. His lordship considered that the articles of the agreement were controlled by a *fasciculus* of sections in the Railway Clauses Consolidation Act of 1845, taking which into consideration he thought the railway company could not claim the common law implied, right of support. A review of the cases which had dealt with this point showed that, when a railway company bought the land, unless they bought the minerals also, they enjoyed the benefit of the land support until the owner of the minerals desired to work the same—a time which might, of course in some cases, never arrive. When that time, however, did arrive, he was of the opinion that there was no difference intended by the Legislature between the case of the owner of minerals that are got at from the surface and minerals workable from underground. The appeal must be dismissed.

Lord Justice Bowen, in agreeing with the decision of Lord Justice Lindley, said:—In this case they had to decide not whether an owner of minerals which the railway company were unwilling to purchase was entitled to work by underground workings in such manner as to destroy the surface by letting it down, but whether the owner of minerals near the surface, using the usual mode of working, was entitled to get his minerals by actually going on the soil of the company's land, and removing it so as to destroy the railway. And he cited the case of the Midland Railway Co. *v.* Robinson, which was finally heard in the House of Lords, and in which the learned lords (with the important exception of Lord Macnaghten) decided that a mineowner has the right, unless the company offer to purchase, to go on the soil and win the minerals from the surface in the customary mode of working. In his opinion the appeal ought to be dismissed.

Lord Justice A. L. Smith, in concurring with the aforesaid decision said:—It had now been held by the highest authority that the mineral mentioned in the section include not only those won by underground workings, but those won by open workings, and it was not disputed that the terra-cotta clay in question was a mineral within the sections. It had also been held by like authorities that when due notice was given to the railway company to purchase the mineral under the railway and the company was not willing to purchase, then the unpaid mine owner (if he worked his minerals in a manner customary and proper for the beneficial working and usual in the district) might work such minerals underground, even though by so doing he let down and destroyed the surface of the railway and its works.

In his opinion the word "owner" in section 79 of the Consolidated Clauses Act meant both an owner who worked his minerals from underground and one who did so from the surface, and each, if they worked in the accustomed manner, were equally protected by the statute. For these reasons he was of opinion that the foregoing decisions were correct, and the appeal must be dismissed with costs.

# Selected Correspondence.

## SALFORD AND RIVER POLLUTION.

(*To the Editor of the Manchester Guardian*).

SIR,—I have read with interest your report of the charges brought against Salford at the monthly meeting of the Mersey and Irwell Rivers Committee. From the report it appears that the Committee take grave exception to the action of the Salford Corporation in threatening certain manufacturers with proceedings at the expiration of two months unless they take such practical and reasonable steps as may be necessary to stop the flow or render harmless any poisonous or noxious matter which is at present turned into the river by them. These proceedings reminded me of the report of the Executive Committee of the Association which was formed in 1888 to promote the amalgamation of Manchester and Salford. It is certainly an interesting and somewhat amusing comment on the threatened proceedings by the Salford Corporation. In an appendix the Executive Committee of the Association give the report of their Sub-committee on "Salford Main Drainage." So far as I am aware, its contents have never been contradicted or denied. From a perusal of this document, it is startling to find that the public body which is now determined to check misconduct on the part of its neighbours is, or at least was in 1888, in the habit of "only pumping and treating chemically the sewage which passes

through the main intercepting sewer for eleven hours out of the twenty-four each day, and that during the remainder of the twenty-four hours the sewage either passes directly into the river, or for a short time is backed up in the sewer." May I ask Alderman Walmsley, the chairman of the Rivers Conservancy Committee in Salford, what, if any, improvement has since been made upon the state of matters referred to above? It seems to me that Salford has a very considerable mote to pluck out of its own eye before it can see clearly to perform the like operation for its neighbours. I think I may say, on behalf of a large number of important ratepayers in the borough, that they confidently look to the Mersey and Irwell Rivers Committee to unmask Salford, and tell the Corporation in the plainest terms possible that they must mind their own business, and set to work at once in real earnest to alter a state of matters within their own borders, which can only be described as scandalous.—Yours, &c., GAMA.

Manchester, 9th December, 1892.

P.S.—Since writing the foregoing, I observe that Alderman Walmsley at the last meeting of the Salford Corporation said, "it was time that some philanthropy and sympathy should be extended, not to the manufacturers who have been offending so long, but to the working people who would have to live in the vicinity of the mass of pollution that was being poured into the Ship Canal docks. He said on Monday, 5th inst., and he said again now, that if such a state of things was allowed to continue the population of Salford would be decimated." It is perfectly clear that either the Amalgamation Association Committee have grossly misstated the facts, or the Salford Corporation are—to put it plainly—hoodwinking the ratepayers. Mr. Hibbert and his zealous Committee are well able to sift the matter properly.

[For the full report of the speech to which reference is made in the above post-script, see this issue p. 384.—Ed. *C.T.J.*]

*To the Editor of the Manchester Guardian.*

SIR,—Your correspondent "Gama" asks me a question, the reply to which he ought to have obtained before he wrote his letter. A man should not expose his ignorance recklessly. His quotation is ancient history, and will not serve his purpose now. If "Gama" has courage enough to publish in your journal his name and address, so that I can be satisfied as to his personality, I will take the trouble to furnish him with information which will educate him up to date —I am, &c.,

FRANCIS H. WALMSLEY, Chairman Salford Rivers Conservancy Committee, Member of Joint Committee of Lancashire and Cheshire for the Prevention of Rivers Pollution.

# Correspondence.

*** We do not hold ourselves responsible for the opinions expressed by our correspondents.*

## ANSWERS TO CORRESPONDENTS.

J. P.—It is well suited to your purpose, and would suggest a trial, from which you will soon see whether it is worth your while following up.

M. AND B.—Thanks for explanation. We felt sure it must be owing to some such circumstance, and are glad to have the point cleared up

F. J. C.—We thank you for your offer, and shall be glad to hear from you again shortly.

R. L. W.—Notices safely to hand, for which we thank you.

M. AND CO.—Zincos to hand safely we are glad to say.

WASTE.—It answers the same purposes as putty powder, but is better.

J. B.—We have not received the communication which you promised us yet.

COSMOS.—We have samples at our office we shall be pleased to show you at any time, but that is all we can do in the matter.

## THE FLASH POINT OF MINERAL OILS.

*(To the Editor of the Chemical Trade Journal.)*

SIR,—In the Act of 1862 petroleum is included, and any product thereof which "gives off an inflammable vapour at a temperature of less than 100° Fah." No system of testing was given by the Act. This, however, was a wise thing compared with what was done in the Act of 1868. What was wanted was to find the *lowest* temperature at which an explosion of vapour could take place, and the method that gave the lowest flash point as a matter of course was the true one. The Act of 1868 gave the old open test as the method to be used, although a close test had been in use in oil works for many years. This was a huge stupidity on the part of the Government advisers, perpetrated no doubt to please the mineral oil trades. It adopted a test that was perfectly unscientific. It did not catch any point whatever, and so could be manipulated to give a higher or lower result according to the desire of the experimenter. It did not aim at catching the lowest point at which an explosion could be got, but got a result 20 or 30 degrees higher. This, besides giving a false impression of safety to an oil and letting in oils that ought to have been excluded, also did permanent harm by confusing men's minds as to what the flash point was. Such tremendous stupidity in a matter affecting hundreds of lives is surely quite inexcusable in scientific men of any grade. That was bad enough, and one would think could scarcely be equalled.

Yet I think even a greater stupidity was perpetrated in the Act of 1879. Nobody objected to the old open test, although they ought to have done, because it gave a perfectly false indication; but catching no point in particular it had to be discarded for a method giving a definite one. It was found that the only point that could be agreed on was the true flash point, *i.e.*, the lowest temperature at which an explosion could be got, and this was determined at last in a scientific manner by the apparatus invented by Professor Abel.

Instead of the Government sticking by the old safety point of 100°, which was fixed by our climate, they allowed themselves, no doubt, to be influenced by the oilmen again, and the point they decided on was lowered to 73°, because that was the equivalent, according to certain experimenters, to the 100° of the old test. So this old false test, adopted by sheer stupidity, and indicating nothing whatever in the world became the criterion of what was to be the new safety point, which point was fixed at a figure that in our climate corresponds to no safety at all. When I lived in England many years ago we had for days at a time about 96° F. in the shade, and 120° in the sun. This was exceptional heat, but for months, I am sure, it would be over 80° in the kitchens. No doubt that is the state of matters yet.

The result is that hundreds of English folk are slaughtered every year merely to suit the convenience of the foreign petroleum manufacturers. Lamps are a constant source of alarm, and the fear increases the danger. Our Government instead of protecting us has done the very reverse. Who was responsible for these stupidities I don't know. Probably the responsible man was one who had to be advised, and his advisers would be many, without any feeling of responsibility, and with a great and laudable desire to be agreeable to each other and to the world. It is not practicable to make cheap safety lamps for ordinary household use that would be nothing less than an extra source of danger. For low-flashing oil is more dangerous outside the lamp than inside, and anything that gives a feeling of security in using low-flashing oil for ordinary every-day use will only cause the more accidents. Of course low-flashing oils can be burned quite safely with proper lamps properly locked after. Nobody wishes to stop the use of such oils. But they should be labelled, and the persons who buy them should know that they are getting oil that requires care. The point to separate safe from dangerous oils in our climate is the old point fixed at first, viz., 100° F. All oils flashing under that temperature should have the flash point mentioned in invoices and bill of lading under a penalty, and printed on the barrel, etc., so that persons who wish to use safe oil would be certain they were getting it, and others who wish to get low-flashing oil would get it at a cheaper rate. Is there any room for two opinions on these points? The proper flash point for safety was discussed both in Edinburgh and Glasgow by full meetings of the Society of Chemical Industry, but only one opinion was represented, and I cannot see for my part that more than one is possible.—Yours truly, D. R. STEUART.

Broxburn, N.B, December 13, 1892.

# Trade Notes.

SIZING FABRICS.—A mixture composed of sodium sulphate in conjunction with chloride of calcium magnesium or zinc, is suggested by Mr. R. Ingham as an adjunct to size, in sizing yarns and fabrics, the proportions in which the ingredients are mixed, forms the subject of a patent.

EXTENSIVE DESTRUCTION OF SALT BY FIRE.—The sheds of the Michigan Salt Company at Cummings, U. S. A., were recently totally destroyed by fire. The estimated loss is about £50,000., of which £12,300. is covered by insurance. It is estimated that between 200,000 and 300,000 barrels of salt were destroyed.

COLLIERY DISASTER NEAR WIGAN.—A simple accident, attended however by disastrous results, took place last Wednesday morning. A large petroleum lamp used to heat the cylinder of the underground hauling engine which is worked by compressed air, was either upset or burst, the former under the circumstances appearing to be the more feasible surmise. The petroleum caught fire, setting fire to the wood with which the cutting was lined for some 50 yards. The fumes and smoke from these were quickly carried into the lower workings, where many miners were suffocated before they could escape, and others were crushed to death by the trucks which ran away down the incline, when the accident happened at the hauling engine. About a dozen lives were lost. This accident corroborates with lamentable force the remarks of a correspondent upon the lowness of the flash point of mineral oils which appear in this issue.

Sewage Works.—The local Government Board has recently approved of the scheme prepared by Mr. A. G. McBeath, surveyor to the Local Board of Sale, for the purification of the sewage of the township, and given its sanction for the borrowing of a sum of about £19,500., necessary for the purchase of the land and the execution of the various works. The plans were submitted to the Local Government Board in 1890 in order to meet the requirements of the Rivers Pollution Act, as pointed out in a circular issued by the Manchester Ship Canal Company. The system to be adopted for the purification of the sewage is one of precipitation and filtration, the precipitation being effected by the ferozone, and the filtration by polarite filter beds under the International Water and Sewage Purification Company's process. The effluent will flow into the Mersey by gravitation. The sludge will be treated so as to form manure. The site of the works is near the Bridgewater Canal, and will cover an area of 5½ acres, but the total area to be acquired for sewage and other purposes is 5½ acres, leaving ample room for extension if necessary.

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

There is but little change to report in the tar products market, but benzol may be quoted as 1d. firmer in both qualities, namely, 90's and 50/90's. Nothing can be said respecting anthracene, as the *status quo* is rigidly maintained.

The sulphate of ammonia market has fallen off a great deal, and prices seem inclined to ease off; at all events, second-hand business has been done at 2s. 6d. per ton decline both at Hull and Leith, and buyers will not now exceed £10. At Liverpool some business has been reported at £10. 1s. 3d. There is no necessity to take alarm from the present dulness, which seems to set in annually about this time, especially as there is no large quantity offering, and shipments continue on a fair scale. Beckton is still quoted at £10 2s. 6d., and the same value may be quoted for outside makes.

## REPORT ON MANURE MATERIAL.

During the week the market has been very quiet all round, and any change in prices has been in favour of buyers.

The quotation for 75/80% Florida phosphate rock is still 8d. per unit, in cargoes c.i.f. to United Kingdom, but this price is not obtainable, and 7¾d. is probably nearest value. There are sellers of hot air dried Coosaw rock at 6½d. per unit, but 6¼d. would probably do if bid, for cargoes for shipment. Hot air dried Peace River rock may be quoted 6½d. to 6¾d. per unit. There are sellers of River Plate bone ash at £2. 17s. 6d. per ton, on 70%, nett Hamburg terms, and this price is perhaps a shade above present value.

Further business has been done in River Plate cargoes of bones at £4. 2s. 6d., and at the close there are rather more sellers at this price. Crushed Kurrachee bones offer freely at £4. per ton, ex quay Liverpool or Hull, and something less would probably be accepted for a good line for shipment. It is reported that Bombay bone meal has been sold to arrive at £4. 2s. 6d. ex quay Liverpool, but at the close this is rather a full price. Good Charring bones are enquired for at Liverpool, and £4. 5s. to £4. 7s 6d., according to quality and condition, would be paid.

Nitrate of soda is quiet in all positions, but very steady. On spot 8s. 10½d. is lowest for inferior test, and 9s. to 9s. 1½d. for good to refined quality. Due cargoes are worth about 9s. for ordinary test, September shipments about 9s. 1¼d. to 9s. 3d., and October-Novembers 9s. 3d. to 9s. 4½d. per cwt.

There is nothing special to report in other material.

## MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade, business continues fairly active in all the products, and there is little material change in the position, either for spot or forward deliveries. 58% alkali remains at 1¼d. to 1⅜d. per degree f.o.b., for prompt, and for forward delivery 1⅛d. to 1$\frac{3}{16}$d. In Leblanc ash, prices are steady for early deliveries but lower in tendency for forward. Bleaching powder is in good demand, and firm at £7. 10s. f.o r. makers' works. Caustic soda for present month is 2s. 6d. to 5s. per ton lower. Spot quotations are:—F.o.b. Tyne, 77%, £11. 15s.; f.o.b. Liverpool, 74%, £11. 2s. 6d.; 70%, £10. 2s. 6d.; 60%, £9.; cream, 60%, £8. 15s., 10-ton lots and upwards. In recovered sulphur, business is still quiet, and value is £4. 10s. per ton f.o r. makers' works. Chlorate of potash 7½d. to 7d. per lb., less 5%, according to period of delivery. Chlorate of soda still scarce for prompt. Sulphate of copper remains steady at £16. For brown and grey acetate of lime, demand is light for present delivery, and prices are unaltered. Acetate of soda, and lead, and acetic acids are all stationary in price. White powdered arsenic continues firm at £12. 10s. nett, Garston, for best makes. In carbolic acid crystals, there is a much firmer market, and nearest spot value for 39/40° is 5¾d., with advancing tendency. Potash, caustic, and carbonate are in steady demand, and prices are firm. Bichromates are without change. Yellow prussiate of potash, 9¾d. to 10d. Tartaric acid, 11½d. per lb. Reports generally do not indicate any improvement in demand for miscellaneous chemicals.

## THE METAL MARKETS.

LONDON, Wednesday.—Pig iron dull. Scotch warrants closed at 41s. 8½d. cash. Middlesbrough 37s. 6d. cash, and Hematite 46s. cash. Copper flat: Chili bars, G.O.B.'s and G.M.B.'s closed at £46. 17s. 6d. cash, and £47. 6s. 3d. to £47. 13s. 9d., three months. Tin steady. Straits closed at £91. 17s. 6d. to £92. cash, and £91. 7s. 6d. to £91. 10s. three months. Australian, £92. 17s. 6d. cash. English ingots, £95. 10s. Lead quiet: Spanish, £9. 17s. 6d. English, £10. to £10. 5s. Silesian spelter: Ordinary, £18. 5s. Quicksilver: First hands, £6. 2s. 6d., second hands, £6. 2s. 6d. *Copper shares* quiet; Cape, 1$\frac{11}{16}$ to 1$\frac{13}{16}$; Copiapo, 2⅜ to 2½; Libiola, 3⅛ to 3⅜; Mason and Barry, 3 to 3⅛; Rio Tinto, 16¼ to 16⅜; Tharsis, 4$\frac{11}{16}$ to 4$\frac{13}{16}$; Namaqua, $\frac{13}{16}$ to $\frac{15}{16}$; Panulcillo, ⅛ to ¼.

WOLVERHAMPTON, Wednesday.—The market was assisted to-day by the better reports from Cleveland, and pig iron prices were maintained. The strength of the coal market is also helping makers. Northamptons, 43s. to 44s., delivered here; Derbyshires, 44s.; Lincolns, 47s. to 48s.; Staffordshire, all mines, 60s.; part mines, 45s.; and common qualities, 36s. to 37s. Finished iron quiet, but steady. Best bars. £8.; merchant, £6. 10s.; common, £5. 15s. to £6.; sheets, £7. singles, £7. 5s. doubles, and £8. trebles. Coal prices firm.

GLASGOW, Wednesday.—Market steady, with small business. Scotch done at 41s. 9d. cash, also at 41s. 11d. one month; closing with buyers at 41s. 8½d. cash, and 41s. 10½d. one month; sellers ask ½d. more. Middlesbrough done at 37s. 7d. cash; closing with buyers at 37s. 6d. cash; sellers ask 37s. 7½d. Hematite closes with buyers at 46s. cash; sellers ask 46s. 4½d.

## LIVERPOOL OIL AND COLOUR MARKET.

Wednesday.

OILS.—Palm oil is steady but rather quieter. Lagos has been selling at £24. 15s. and Accra £22. 5s. per ton, both transit. Olive continues quiet, but prices are firm at £35. to £40. per tun, according to quality, the demand being limited. Linseed is very firm though there has not been much business passing Prices have hardened slightly, 19s. 3d. to 19s. 6d. per cwt., in export casks, now being asked. Cottonseed maintains the advance of last week, and has been steady at 19s with a moderate business doing. Castor oil is easier generally, good seconds Calcutta has been done at 2$\frac{5}{16}$d. per lb. ex quay; first pressure French at 2$\frac{11}{16}$d., but the firmness of the latter is due to the shortness of supplies Tallow is firm in price, but the market is slow. Resin, common, is in fair request at 4s. per cwt., while the higher grades have advanced in prices and are very firm owing to the lack of supplies both here and abroad. Spirits of turpentine are firmer without change in price, value being 22s. 9d. per cwt. Petroleum is brisk at last quotation.

COLOURS.—No change to report. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s., medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £22. to £23.

## THE LIVERPOOL MINERAL MARKET.

The market has on the whole ruled firm. Manganese: Only one cargo has arrived this week, and it is being delivered against forward contracts right away, whilst stocks, which are unusually low for this time of the year, have been heavily drawn upon, and prices have further advanced. Advices of shipments are very few, and those will

st for some time, owing to the winter stopping mining opera- is usual; therefore still higher figures are being paid. Borate, lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, arbonate, £12. 10s., steady. Magnesite (raw lump) steady; und £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill till continues very brisk, especially for export foreign, and e firm; lump 20s., seconds 16s., and thirds 12s. French Arrivals small, whilst demand is brisk, and prices are firm. White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 95s.; and superfine, 105s. Barytes: Carbonate, best lump, nuts, 70s. to 80s.; finest white sulphate is in demand. White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. tone quiet. Iron ore flat, Bilbao, Irish, and Cumberland Santander and manganiferous quiet. Emerystone: There is ing, and prices are firm; No. 1 lump, £5. 10s. to £6.; £5. to £5. 10s. Fullers' earth continues quiet; best lump, fine impalpable ground, £7.; "Emerald" ground, 80s. e, wolfram, tungstate of soda, and tungsten metal continue ich sought after, and prices are firm. Chrome ore is in good for best qualities, and prices firm. Antimony ore steady at nd metal £43. to £44. Asbestos very firm. Potters' lead ills, £10. 10s. to £11. Calamine strontia sulphate (celestine) Limespar steady, especially for English manufactured; old brand in demand at 50s. (ground). Felspar quiet. Fluorspar: ality scarce. Ferro-manganese in better demand. Plumbago: , £5.; best Ceylon lump at last quotations; Italian and an, £4. to £12. per ton. "Founders," £5. to £6.; Black- 'Mineraline," £10. French sand, 20s. to 22s. 6d. Ground 45. to £50. China clay steady, common, 18s. 6d.; good , 22s. 6d. to 25s; best, 30s. to 35s. (at Runcorn). Bog ore f iron) scarce; finest quality 25s. to 30s.

## THE COPPER MARKET.

s. Harrington and Co., in their fortnightly report, dated ol, December 2nd, 1892, state:—The Chili charters for the night are advised as 500 tons, which, with 1,000 tons for the fortnight, makes 1,500 tons for the month, thus making the arters since 1st January 19,950 tons, against 18,440 tons same t year. Exchange, 18¼d.

our last issue sales of g.m.b.'s and g.o.b.'s have amounted to ,000 tons, and prices have ranged from £46. 13s. 9d. cash and . 9d. three months to £48. 2s. 6d. and £48. 11s. 3d. respec- with occasional fluctuations. There has been a good demand on of trade and speculation, also on American account, and we -day at £47. 17s. 6d. cash and £48. 7s. 6d. three months.

e will be no Anaconda matte available for England for some come beyond what was sold for forward delivery, and we are understand that with the exception of a few parcels no more a matte will be on the market for the present.

nentioned in our last report that Messrs. Williams, Foster, and l taken over the business of Messrs. Pascoe, Grenfell, and imited, and we have received a circular from the former confirm- , and informing us they will add to the style of their company e of Pascoe, Grenfell, and Sons, Limited.

nderstand that Messrs. Mason and Barry have disposed of their f precipitate (firsts), about 5,000 tons, for delivery over 1893, on less the same terms as the existing contracts.

otal stocks in Liverpool, Swansea, London, and Havre show a e of 808 tons for the fortnight, which, with 1,422 tons for the s fortnight, makes a total decrease of 2,230 tons for the month. cks include about 2,220 tons of copper sold, but not yet delivered ters. The visible supply shows a decrease of 868 tons for the it, which, with 1,454 tons for the previous fortnight, makes a crease of 2,322 tons for the month. The total deliveries for the it are 3,781 tons, which, with 6,210 tons for the previous fort- nakes a total of 9.991 tons for the month. The present stock of g.m.b.'s in warehouse, Liverpool and Swansea, is 1,750 tons, 1,796 tons on the 16th ult. The delivery in Liverpool and a was 46 tons, making a decrease of this quantity for the it. Refined and manufactured sorts are firm. Quotations —Tough cake £51. 10s. to £52., best select £52. 10s. to £53, sheets £55., strong sheets £60., and yellow metal sheets 5⅛d.

sales of furnace material comprise:—About 3,000 tons American a matte, of various descriptions, sold to arrive, at from 9s. 9d. 1½d.; 400 tons Mason's precipitate (balance of old syndicate ving here), at 9s. 6d.; 50 tons on contract terms; 50 tons Seville tate, at 9s. 6d.; 85 tons Spanish precipitate, at 9s. 6d.; and 25 nglish precipitate, at 9s. 9d.; 70 tons Spanish ore, on private terms, and 28 tons at 8s. 9d.; 300 tons Chili ore, at 9s.; 120 tons Mexican ore, at 9s. 6d. per unit; and 26 tons Argentiferous Chili regulus, on private terms. At Swansea: 20 tons Cantabrian ore, at 8s. 7½d.; 500 tons Namaqua ore, to arrive, at 9s. 6d.; and 200 tons Bratsburg ore, at 9s. 7½d. per unit.

## TYNE CHEMICAL REPORT.

TUESDAY.

In chemicals the market is dull, with the exception of bleaching powder, which commands fully £7. 10s. per ton. Soda crystals are quoted at £2. 15s. per ton gross weight; 70% caustic soda, £10. 5s. Though prices of these products vary with place of consumption, lower figures being accepted for some markets abroad. Sulphur unaltered at £4. 15s. nett.

Bleaching powder, softs, £7. 10s. per ton nett; hards, £7. 15s. per ton; caustic soda, 76/77%, £11. 10s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £4. 15s. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £4. per ton, 140° Tw., £4. 7s. 6d. per ton; soda crystals, in casks, £2. 15s. per ton gross weight, in 2 cwt. bags, £2. 15s. per ton nett weight; chlorate of potash, 9d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 10s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 10s. per ton; nitrate of baryta crystals, £19. per ton nett; ground, £19. 10s. per ton; sulphide of barium, £7. per ton; carbonate of alumina, £28. 10s. per ton; aluminate of soda, £33. 10s. per ton; hydrate of barium, £11. per ton.

South Durham salt steady at 10s. 1d. per ton f.o.b. Tees.

In the coal trade there is considerable irregularity in price according to position of different collieries. Best Northumbrian steam coals quiet at from 9s. to 9s. 3d. per ton f.o.b. Small steam coals vary at from 3s. 9d. to 4s. per ton f.o.b. Gas coals are now in their heaviest demand, and large quantities are being shipped; prices vary as much as 7s. up to 8s. 6d. per ton f.o.b. Bunker coals in poor demand and prices weak. Manufacturing coal dull. Coke in fair enquiry; price unaltered at 15s. 6d. to 16s. per ton.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

There is not much more of change in the ordinary chemicals, but bleaching powder is slightly firmer, although not with any advance in actual quotation. The same applies to chlorate of potash. Sulphate of copper has made a further rise of 10s. Soda crystals have been moving off more quickly since the last reduction. Caustic sodas are decidedly weak and idle, in consequence of expected early fall, the old quotations still standing.

The position of sulphate of ammonia is very ill defined at present, and operators find it impossible to reconcile the different symptoms. Advices from the continent are all of weakness, but reports from England are rather the other way. On the spot here one or two parcels have been bought at £10., but some holders scout at any such concession, and the purchasing mark can only be stated vaguely at £10. to £10. 2s. 6d.

In paraffins the American producers have delivered a blow in dropping another farthing off scale. Market signs were more the other way, but it is thought that the move is an openly hostile one, in answer to the Scotch agitation for hindering the import of low flash-point petroleum. Scotch producers have, of course, been compelled to reduce a farthing also. Other products are unchanged.

Chief prices current are:—Soda crystals, £2. 15s. nett Tyne; alum in lump, £5. 10s., nett Glasgow; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; bleaching powder, £7. 5s. nett Tyne; saltcake, 32s. 6d.; borax, English refined, £30., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8½d., less 5% Liverpool; nitrate of soda, 9s. 1½d.; sulphate of ammonia, £10. to £10. 2s. 6d. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16. 10s. less

5% Liverpool; paraffin scale (hard), 1¾d., and soft 1¾d. per lb.; paraffin wax, 120°, semi-refined, 2½d.; paraffin spirit (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower); ditto (lubricating), 865°, £3. 5s. to £3. 10s., 885°, £4. 5s. to £5. 15s., and 890/895°, £5. to £6. 10s. Week's imports of raw sugar at Greenock were 13,864 bags.

# New Companies.

**Sicilian Asphalte Paving Company, Limited.**—Capital £15,000. in £1. shares. The object of this company is to trade as dealers, manufacturers of all kinds of asphaltes and minerals.

**Landore Copper Company, Limited.**—Capital £3,000. in £1. shares. This company has been formed to purchase and carry on the works of Mr. Elford, of Swansea, and to trade as miners and refiners of copper, lead, and other metals, and as manufacturers of sulphuric acid, and other metals and chemicals.

**Lancashire Explosives Company, Limited.**—Capital £25,000. in £1. shares. This company has been formed to purchase and prosecute any inventions for the manufacture of improved explosives and to deal in the same. The subscribers to the memorandum of Association are:—F. Brinelow, Old Trafford, Manchester, salesman; T. Fritton, Stretford, Lancs., cloth agent; Romeo Foster, Manchester, yarn agent; J. H. Fisher, Manchester, yarn agent; T. K. Harrison, Manchester, buyer; E. G. Allcock, Manchester, baker.

**John Holme, Limited**—Capital £10,000. in £10. shares. This company has been formed with a view to taking over the business hitherto carried on by Mr. John Holme, of Manchester, as brokers, dealers and importers of all kinds of india-rubber, gutta-percha, &c. The subscribers to the memorandum of Association are:—J. Holme, 19, Hanging Ditch, Manchester; W. Walker, Bolton-le-Moor, tanner; J. Harvey, Bury, tanner; W. Hough, Burnley, tanner; H. T. Holmes, Manchester, leather merchant; C. Bentley, Manchester, commercial traveller; J. McQueen, Salford, salesman.

# The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

### APPLICATIONS FOR LETTERS PATENT.

**Electric Smelting of Aluminous and other Refractory Ores.** T. L. Wilson. 21,696. Nov. 28th.
**Electric Reduction of Refractory Metallic Compounds.** T. L. Wilson. 21,701. Nov. 28th.
**Utilising Waste Acid Sodium Sulphate.** E. Bouchaud-Praceiq, 21,702. Nov. 28th.
**Obtaining Ammonia and Ammonia Salts from Nitrogenous Organic Matters.** H. H. Lake. 21,723. Nov. 28th.
**Improvements in the Manufacture of Chlorate of Soda.** T. T. Best. 21,735. Nov. 29th.
**Reducing Ores.** A. J. Rossi, J. McNaughton and W. D. Edmonds. 21,762. Nov. 29th.
**Centrifugal Extractors.** W. E. Johnson and R. C. Mitchell. 21,776. Nov. 29th.
**Electrodes for Ozonisers.** E. Andreoli. 21,794. Nov. 29th.
**Manufacture of Caustic Soda and Chlorine.** S. Z de Ferranti and J. H. Noad. 21,807. Nov. 29th.
**Treating Pitch or Tar Resulting from the Manufacture of Fats and Oils from Gas and the Like.** G. J. Epstein. 21,809. Nov. 29th.
**Cleaning and Extracting Oil from Cotton Waste.** J. D. Barnett. 21,817. Nov. 29th.
**Production of the Cyanides of the Alkali Metals.** W. C. Sellar. 21,824. Nov. 29th.
**Production of the Cyanides of the Alkali Metals.** W. C. Sellar. 21,825. Nov. 29th
**Treatment of Ores containing Zinc and Antimony.** H. L. Sulman. 21,826. Nov. 29th.
**Improvements in the Manufacture of Illuminating and Heating Gas.** H. Fourness 21,871. Nov. 30th.
**Artificial Fuel.** H Pazolt. 21,914. Nov. 30th.
**Apparatus for Treatment of Sewage Matter.** M. Nadlein, B. Ewdokimoff, and S. de Baschmakoff. 21,931. Nov. 30th.
**Improved Composition Paint.** J. S. P. Stutley. 21,932. Nov. 30th.
**Preparing Methyl-ether, Ethyl-ether and their Homologues by the action of Alcohols on Benzene Sulphonic Acid or their Esters.** F. Kraffi and A. Roos. 21,938. Nov. 30th.
**Purifying and Drying Raw Sugar.** W. P. Thompson. 21,939. Nov. 30th.
**New Filtering Paper.** J. P. H. Heusser. 21,948. Dec. 1st
**Apparatus for Crushing Minerals.** G. O'Brien. 21,953. Dec. 1st.
**Artificial Building Materials.** F. W. Lohrmann. 22,004. Dec 1st.
**Improvements in Hydrometers and Sacchrometers.** J. J. Hicks and H. H. Zeal. 22,005. Dec. 1st.
**Dusting Tin and Terne Plates.** G. H. White. 22,006 Dec. 1st.
**Coating and Finishing Tin and Terne Plates.** G. H. White. 22,007. Dec. 1st.
**Improvements in the Manufacture of Soap.** H. H. Lake. 22,039. Dec. 1st.
**Imitation Marble.** J. Hilton and J. Rostron. 22,055. Dec. 2nd.
**Concentration of Sulphuric Acid.** T. Hughes. 22,078 Dec. 2nd.
**Improvements in paints and Driers therefor.** F. Crane. 22,098. Dec. 2nd.
**Manufacture of Soda, Potash, Soap.** E. Gorg. 22,137. Dec. 3rd.
**Manufacture of Persalts of Iron.** I. Levinstein Dec. 3rd.
**Improvements in Gas Producing Plant.** H. E. Newton. 22,174. Dec. 3rd.
**Improved Waterproofing Composition.** W. Baker. 22,175. Dec. 3rd.

# Gazette Notices.

### PARTNERSHIPS DISSOLVED.

H. T. Simpson, and H. Young, under the style of Henry Young, Manchester, paper material merchants.
E. Hutchinson, S. Greenhalge, and J. Balshaw, under the style of E. Hutchinson and Co., Feniscowles, near Blackburn, and Bolton-le-Moors, manufacturing chemists.
E. Böhm, and E. B. B. George, under the style of E. Böhm and Co., Little Britain, glass-blowers and electrical engineers.
B. M. P. Bayley, and J. Walter, under the style of B. Bayley and Company, Wolverhampton and Birmingham, isinglass and brewing sugar merchants and importers.

### BANKRUPTCY ACTS, 1883 and 1890.

#### Receiving Order.

Sinzininex, Arthur, late of Stoke-on-Trent, now of Pontblyddon, near Mold Flintshire, chemist.

#### Adjudications.

Hardy, Robert, Fenchurch-st., City, and Camden-sq., N.W., late Great Tower-st., City, chemist and druggist.
Snowdon, F. Seaton, trading as Robert Hall and Co., Port-slade, Sussex, manufacturer of sheep dip.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending December 3rd.*

**Acetate of Lime—**

| | | |
|---|---|---|
| U. States, | 336 pkgs. | Johnson & Hooper |

**Acetic Acid—**

| | | |
|---|---|---|
| Holland, | 120 pkgs. | Beresford & Co. |

**Alkali—**

| | | |
|---|---|---|
| France, | 440 c. | Arnati & Harrison |

**Alum—**

| | | |
|---|---|---|
| Holland, | 135 pkgs. | Ohlenschlager Bros. |
| ,, | 90 | Ross & Deering |

**Antimony—**

| | | |
|---|---|---|
| France, | 25 t | Smith, Sundius, & Co. |
| Spain, | 3 | B. & N. Whvs. Co., Ld. |
| Australia, | 8 | Vivian, Younger, & Co. |
| Spain, | 10 | Pillow, Jones, & Co. |
| ,, | 10 | J. Bamber |
| A. Turkey, | 40 | French & Smith |
| N. Zealand, | 31 | R. Turner |

**Asbestos—**

| | | |
|---|---|---|
| Germany, | £13 | Craven & Co. |

**Barytes—**

| | | |
|---|---|---|
| Spain, | 46 cks. | W. Fenton |
| ,, | 1 | Phillipps & Graves |
| ,, | 46 | Magee, Taylor, & Co. |
| Germany, | 19 | S. H. Willoughby |
| Belgium, | 264 | Leach & Co. |
| Belgium, | 11 | Stobbs, Wilson, & Co. |
| Holland, | 22 | Beresford & Co. |
| ,, | 55 | A. Zumbeck & Co. |

**Caoutchouc—**

| | | |
|---|---|---|
| Natal, | 18 pkgs. | Prop. Bull Wf. |
| E. Indies, | 440 | C. Huttenbach & Co. |
| U. States, | 863 | Williams, Torrey, & Co., Ltd. |
| Madagascar, | 644 c. | L. & I. D. Jt. Co. |
| E. Indies, | 61 | Kleinwort, Sons, & Co. |
| Madagascar, | ,, | ,, |
| ,, | 824 | Hammond & Co. |
| U. States, | 70 | L. & I. D. Jt. Co. |
| ,, | 1 | Hoare, Wilson, & Co. |

**Carbonic Acid Gas—**

| | | |
|---|---|---|
| Holland, | 18 pkgs. | H. & G. Dutfield |

**Castor Oil—**

| | | |
|---|---|---|
| France, | 60 brls. | Burrell & Co. |
| ,, | 33 | Beresford & Co. |

**Chemicals** (*otherwise undescribed*)

| | | |
|---|---|---|
| Germany, | £5 | L. & I. D Jt. Co. |
| Holland, | 37 pkgs. | R. Morrison & Co. |
| ,, | 6 70 | T. H. Lee |
| ,, | 11 | Phillipps & Graves |
| Germany, | 10 | ,, |
| ,, | 13 | A. & M. Zimmermann |
| ,, | 2 | J. W. Drysdale & Co. |
| ,, | 17 | Typke & King |
| ,, | 7 | Craven & Co. |
| ,, | 10 | W. Burton & Sons |
| ,, | 12 | T. H. Lee |

**Cream of Tartar—**
Spain, 18 pkgs. B. & F. Wf. Co., Ltd.
" 46 W. C. Bacon & Co.
" 20 C. Christopherson & Co.
Holland, 50 Middleton & Co.
France, 12 Ross & Deering
" 10 W. C. Bacon & Co.
" 4 E. W. Carling & Co.
" 5 B. & F. Wf. Co., Ltd.
Italy, 19 Howards & Sons
Germany, 1 Craven & Co.

**Dyestuffs—**

**Argols**
France, 23 pkgs. N. S. S. Co., Ld.
" 10 Williams, Torrey, & Co., Ltd.
Italy, 124 Thames S. T. & L. Co., Ltd.

**Cochineal**
Holland, 15 pkgs. W. M. Smith & Sons
" 15 J. Parleviet
Canaries, 100 W. H. Cole & Co.
" 15 W. M. Smith & Sons
" 69 Swanston & Co.
" 28 Johnson, Hicks, & Co.
" 19 Marshall & French
" 20 Kuhner, Henderson, & Co.

**Cutch**
Rangoon, 40 pkgs. Hale & Son

**Extracts**
France, 220 pkgs. B. & F. Wf. Co., Ltd.
" 85 Carey & Sons
Norway, 1 W. E. Bott & Co.
Denmark, 1 A. F. White & Co.

**Gambier**
E. Indies, 512 pkgs. S. Figgis & Co.
" 269 J. Greig
" 84 Brinkmann & Co.
" 264 Beresford & Co.
" 6,039 E. Boustead & Co.
" 378 R. & J. Henderson
" 4,406 L. & I. D. Jt. Co.

**Indigo**
E. Indies, 138 chts. L. & I. D. Jt. Co.
" 10 Ross & Deering
" 10 F. Huth & Co.
Germany, 9 Phillipps & Graves
Holland, 3 Skilbeck Bros.
E. Indies, 79 Benecke, Souchay, & Co.
" 117 R. Von Glehn & Sons
" 94 Allan & Co.
" 27 Wallace Bros.
" 12 Walker, Munsie, & Co.
" 12 Arbuthnot, Latham, & Co.
" 35 W. Brandts, Son, & Co.
Holland, 2 L. & I. D. Jt. Co.
Azores, 1 T. Jordan & Co.
Guatemala, 30 Lazard Bros.

**Myrabolams**
E. Indies, 400 pkgs. Marshall & French
" 157 J. Graves
" 700 D. Sassoon & Co.
" 900 Clarke & Smith
" 392 Arbuthnot, Ewart, & Co.

**Orchella**
Ceylon, 3 pkgs. L. & I. D. Jt. Co.

**Saffron**
France, 1 pkg. G. Wheatley & Co.

**Sumac**
Italy, 100 pkgs. M. D. Co.
" 14 J. H. Le Dore
" 100 W. Shelcott
" 200 Sollas & Sons

**Tanners' Bark**
Belgium, 44 t. Leach & Co.

**Turmeric**
Germany, 8 pkgs. J. Knill & Co.
E. Indies, 213 Prop. Bull Wf.

**Valonia**
A. Turkey, 25 t. J. Graves
Greece, 28 "
A. Turkey, 20 S. Barrow & Bros., Ld.

**Dyestuffs** (*otherwise undescribed*)
A. Turkey, 135 pkgs. Major & Field

**Farina—**
Germany, 30 pkgs. Prop. Chmbln.'s Wf.
" 122 W. E. Palmer
" 100 R. G. Hall & Co.
Holland, 50 J. Knill & Co.
" 250 J. Anderson & Co.
" 50 Hicks, Nash, & Co.
Germany, 40 Dutrulle, Solomons, & Co.
Holland, 25 Vokins & Co., Ltd.

**Glucose—**
Germany, 25 pkgs. 210 c. J. Knill & Co.
" 600 600 c. Baxter & Hoare
" 25 204 Prop. Chambln.'s Wf.
" 300 300 J. F. Ohlmann
" 200 200 J. Barber & Co.
France, 589 589 "
" 450 450 L. Norman & Co.
" 100 100 Barrett, Tagant, & Co.

**Guano—**
U. States, 900 t. Anglo Contl. G. Wks.

**Iodine—**
Germany, 144 pkgs. A. Gibbs & Sons

**Iodoform—**
France, 1 pkg. Mory & Co.

**Magnesium—**
Germany, 3 pkgs. Phillipps & Graves

**Manure—**
France, 80 t. J. Burnett & Sons
Germany, 330 Lawes Chemical M. Co.

**Mica—**
E. Indies, £1,940 W. M. Smith & Sons

**Ochre—**
France. 64 cks. Magee, Taylor, & Co.
Germany, 9 cs. Phillipps & Graves

**Painters' Colours—**
Holland, 11 pkgs. W. H. Carey & Sons
" 1 Flageollet & Co.
Germany, 5 cks. P. Jantzen
" 9 L. & I. D. Jt. Co.
" 6 T. H. Lee
Holland, 2 Phillipps & Graves
Belgium, 24 T. Palmer
France, 2 Flageollet & Co.
Germany, 6 Phillipps & Graves
" 35 H. Lambert
Holland, 81 R. Warner & Co., Ld.
U. States, 2 Pinchin, Johnson, & Co.
France, 27 G. J. Thompson

**Paraffin Wax—**
U. States, 3,822 pkgs. J. H. Usmar & Co.
" 547 brls. H. Hill & Sons
" 100 Fairclough, Dodd, & Co.
U. States, 335 C. Ogleby & Co.
" 70 L. & I. D. Jt. Co.

**Phosphate Rock—**
Belgium, 190 t. D. McNaughton
Holland, 50 Lawes Chemical M. Co.
" 235 T. Farmer & Co.
Belgium, 200 Schofield, White, & Co.

**Pitch—**
N. Russia, 60 pkgs. Sieveking, Droop & Co.
France, 30 brls. Poth, Hille, & Co.
" 150 cks. H. Hill & Sons

**Plumbago—**
Holland, 31 cks. B. Gallaway
Canton, 10 Harvey, Brand, & Co.
Ceylon, 70 brls. Doulton & Co.
" 70 J. Thredder, Son, & Co.

**Potash—**
Canada, 175 c. Charles & Fox
Germany, 6 pkgs. L. & I. D. Jt. Co.

**Potassium Carbonate—**
Germany, 2 cks. Elkan & Co.
" 40 Pillow, Jones, & Co.
France, 70 c. J. A. Reid
" 206 Charles & Fox
" 17 Spies Bros. & Co.
" 40 Pillow, Jones, & Co.

**Potassium Oxymuriate—**
Belgium, 50 pkgs. G. Boor & Co.

**Potassium Permanganate—**
Germany, 20 cks. Domeier & Co.

**Potassium Sulphate—**
France, 18 pkgs. Weatherley, Mead, & Co.
Belgium, 63 F. W. Berk & Co., Ld.

**Pyrites—**
Spain, 950 t. Anderson, Anderson, & Co.

**Quicksilver—**
Italy, 500 btls. L. & I. D. Jt. Co.

**Rosin—**
France, 20 brls. J. Watt & Son
U. States, 750 Moore & Hole
" 6,236 G. Nutter & Co.
" 500 Fairclough, Dodd, & Co.
" 3,550 F. & S. Chiesman & Co.
Rangoon, 500 Prod. Brokers Co.

**Saltpetre—**
Germany, 112 cks. P. Hecker & Co.
" 23 Craven & Co.

**Soda Ash—**
Belgium, 100 c. Magee, Taylor, & Co.

**Soda & Potassium Bicarbonate—**
Holland, 33 pkgs. A. & M. Zimmermann

**Sodium Acetate—**
France, 27 pkgs. S. F. Waters & Co.
" 15 H. Wallace & Co.

**Stearine—**
France, 213 sks. Beresford & Co.
" 285 G. Boor & Co.
Holland, 30 bgs. Williams, Torrey, & Co., Ltd.
" 30 Robinson, Roberts, & Co.
U. States, 125 H. Hill & Sons
France, 10 cks. Barrett, Tagant, & Co.
Belgium, 63 H. Hill & Sons

**Talc—**
Cape Town, £12 J. Pitchall & Co.

**Tallow—**
Queensland, 50 cks. J. Greig
Melbourne, 91 Dalgety & Co.
" 4 Hicks, Nash, & Co.
" 129 pkgs. J. Owen
Sydney, 100 J. Greig
U. States, 60 H. Hehl
Sydney, 401 Beresford & Co.
" 21 Coml. Banking Co. of Sydney
N. Zealand, 81 Dalgety & Co.
" 66 Flack, Chandler, & Co.
" 8 A. Tremearne & Co.
Sydney, 259 "
" 134 Hoare, Wilson, & Co.
" 224 Elkan & Co.
" 217 Brown & Elmslie
" 2 A. Gibbs & Sons

**Tallow and Stearine—**
U. States, 2 cks. Williams, Torrey, & Co.
" 10 Allan Bros. & Co.

**Tartaric Acid—**
Holland, 4 pkgs. C. Christopherson & Co.
" 6 G. Boor & Co.

**Tin Oxide—**
Holland, 7 pkgs. Phillipps & Graves

**Turpentine—** [redacted]
N. Zealand, 145 brls. Prod. Brokers Co., Ltd.
Savannah, 4,755 "

**Ultramarine—**
Holland, 3 cs. W. H. Carey & Sons
" 10 Haeffner, Hilpert, & Co.
Belgium, 20 cks. Forwood Brs. & Co.
Germany, 7 cs. J. Kitchin, Ltd.

**Varnish—**
Holland, 2 pkgs. A. Wright
U. States, 69 H. Johnson & Sons
" 10 Pinchin, Johnson & Co.

**White Lead—**
Germany, 35 cks. J. Knill & Co.
" 15 W. Taylor & Co.
Belgium, 13 brls. O'Hara Matthews
Spain, 110 cks. Magee, Taylor & Co.
" 49 T. & W. Farmiloe
Holland, 30 Elkan & Co.
" 21 A. & M. Zimmermann
Belgium, 4 pkgs. P. C. Thomas & Sons
" 40 brls. J. L. Lyon & Co.

**Zinc Oxide—**
Germany, 50 brls. M. Ashby, Ltd
Holland, 100 "
" 625 cks. Soundy & Sons

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## LIVERPOOL.

*Week ending December 1st.*

**Alumina Sulphate—**
Rotterdam, 12 cks.

**Ammonium Sulphate—**
Marseilles, 6 cks. C. Berthoud

**Antimony—**
Valparaiso, 201 sks. Brownells & Co.

**Asbestos—**
Montreal, 240 bgs. United Asbestos Co., Ld.

**Barytes—**
Rotterdam, 53 cks.

**Castor Oil—**
Calcutta, 919 cs. Ralli Brs.
" 250

**Caustic Potash—**
Rouen, 21 dms.

**Chemicals** (*otherwise undescribed*)
Hamburg, 1 cs.
Rouen, 16 cks. Co-op. W'sale Society, Ld.

**Colours—**
Hamburg, 9 cks.
Rotterdam, 20 6 cs.
Antwerp, 4 brls. J. T. Fletcher & Co.

**Cottonseed Oil—**
New York, 10 brls.

**Cream of Tartar—**
Bordeaux, 1 ck.
Barcelona, 7
Tarragona, 2

**Dextrine—**
Rotterdam, 5 bgs.

**Dyestuffs—**

**Algorabilla**
Valparaiso, 212 sks. W. M'Queen

**Annatto**
Bordeaux, 9 cks.

**Argols**
Oporto, 54 cks. German Bank

**Cochineal**
Gr. Canary, 17 bgs. Widow Duranty & Son
Teneriffe, 10 bgs. Kuhner, Henderson & Co.
" 10 J. Rattray & Co.

**Cutch**
Rangoon, 690 bxs.

**Extracts**
Marseilles, 20 cks.
St. Nazaire, 492
New York, 58 brls. 163 bxs.
Philadelphia, 25
Bordeaux, 200 cks.

**Madder**
Smyrna, 18 bls.

**Myrabolams**
Bombay, 1,677 bgs. D. Sassoon & Co.
" 385
Calcutta, 4,000 pkts.

**Orchella**
Lisbon, 18 bls. Edward Brs.
,, 75 2 cylds. 158 bgs.
**Saffron**
Valencia, 6 cs.
**Sumac**
Barcelona, 100 bgs. A. Ruffer & Sons
,, 50
**Valonia**
Smyrna, 608 bgs. Zarafi Brs. & Co.
,, 1 T. C. Angus & Co.
,, 2 C. M. Elliadi
,, 1,440
**Dyestuffs** *(otherwise undescribed)*
New York, 1 bx. Ralli Brs.
**Farina—**
Antwerp, 17 cs. J. T. Fletcher & Co.
**Glucose—**
New York, 250 brls.
**Iodine—**
Valparaiso, 110 bls. A. Gibbs & Sons
,, 56 W. & J. Lockett
,, 16
**Lead Acetate—**
Hamburg, 28 cks.
**Limestone—**
Rouen, 1 crt.
Antwerp, 2
**Litharge—**
Rotterdam, 40 cks.
**Manganese—**
Bordeaux, 1 pkge.
**Nitric Acid—**
Havre, 3 cs. Cunard S. S. Co., Ld.
**Ochre—**
Marseilles, 95 cks.
Rouen, 50 Co-op. W'sale Society, Ld.
Bordeaux, 14 cks.
**Paint—**
Boston, 20 cs. Frazer & Co.
,, 10
**Phosphates—**
Ghent, 500 bgs.
**Phosphate of Lime—**
Treport, 500 t.
**Pitch—**
Bordeaux, 67 cks.
**Potash—**
Rouen, 110 cks. Co-op. W'sale Society, Ld.
Antwerp, 2 cylds.
**Pyrites—**
Huelva, 2,781 t. Matheson & Co.
**Rosin—**
Wilmington, 4,281 brls.
**Salt—**
Rotterdam, 1 ck.
**Saltpetre—**
Hamburg, 120 kgs. 25 brls.
**Soap—**
Marseilles, 100 cs.
New York, 10 bxs.
Marseilles, 90 bxs. Allan Brs. & Co.
Constantinople, 5 cs.
**Soapstone—**
Bordeaux, 200 bgs. G. G. Blackwell
**Sodium Silicate—**
In transit, 22 brls.
**Stearine—**
Antwerp, 5 bgs.
**Tallow—**
Philadelphia, 75 brls. S. Franks & Co.
Baltimore, 17 hhds.
New York, 230 tcs.
**Tartar—**
Bordeaux, 2 cs. 12 cks.
Valparaiso, 10 sks. Bates, Stokes & Co.
**Tartaric Acid—**
Marseilles, 19 cs.
Rotterdam, 18 cks.
**Tincal—**
Calcutta, 55 bgs.
**Tin Oxalate—**
Rotterdam, 6 cks.
**Ultramarine—**
Hamburg, 5 cs.
Rotterdam, 32 10 cks.
**Varnish—**
Antwerp, 3 cks. J. T. Fletcher & Co.
**Verdigris—**
Marseilles, 11 cks.
**Waste Salammoniac—**
Montreal 8 brls. Jevons & Co.
**Waste Salt—**
Hamburg, 235 t.
**White Lead—**
Rotterdam, 34 cks.
Antwerp, 7
**Zinc Oxide—**
Bordeaux, 220 bgs.
Rotterdam, 110 cks.
Antwerp, 10 brls. J. T. Fletcher & Co.
,, 25
**Zinc White—**
Antwerp, 25 cks.

## HULL.

*Week ending December 3rd.*

**Alkali—**
Flushing, 1 ck. Zeeland S.S. Co.
**Alum—**
Rotterdam, 24 cks. Hutchinson & Son
**Ammonium Chloride—**
Hamburg, 1 ck. Lofthouse & Saltmer
**Asbestos—**
Flushing, 2 bls. Zeeland S.S. Co.
**Barytes—**
Antwerp, 11 cks. Bailey & Leetham
,, 64 H. F. Pudsey
,, 60 bgs. Aire & Calder N. Co.
Rotterdam, 23 cks. Hutchinson & Son
Bremen, 44 H. F. Pudsey
,, 33
**Caoutchouc—**
Hamburg, 4 cs. C. M. Lofthouse & Co.
**Carbolic Acid—**
Amsterdam, 3 cks. W. & C. L. Ringrose
**Chemicals** *(otherwise undescribed)*
Dunkirk, 118 pks. Wilson, Sons & Co., Ld.
Stettin, 32 cks. ,,
Hamburg. 1 cs. Patent Litho Co.
Bremen, 7 cks. 6 Veltmann & Co.
**Colours—**
Danzig, 10 pkgs.
Flushing, 13 cs. 9 cks. 197 pks. Zeeland S. S. Co.
Rotterdam, 2 1 26 W. & C. L. Ringrose
,, 10 10 pks. G. Lawson & Sons
Ghent, 13 brls.
Amsterdam, 2 W. & C. L. Ringrose
Bremen, 4 Veltmann & Co.
Rotterdam, 1 cs. 4 Hutchinson & Son
Kurrachee, 13 cs. Wilson, Sons & Co., Ld.
**Cryolite—**
Copenhagen, 3 cs. Wilson, Sons & Co., Ld.
**Dyestuffs—**
**Alizarine**
Rotterdam, 28 cks. W. & C. L. Ringrose
,, 4 brls. G. Lawson & Sons.
**Indigo**
Amsterdam, 20 cs. 2 pkgs. W. & C. L Ringrose
Kurrachee, 7 cs. Wilson, Sons & Co., Ltd.
**Myrabolams**
Bombay, 398 bgs.
**Sumac**
Bordeaux, 50 bls. Rawson & Robinson
**Farina—**
Groningen, 300 bgs. Anglo-Dutch Trading Co.
Stettin, 1,100 Wilson, Sons & Co., Ld.
Harlingen, 700 92 pkgs.
Ghent, 272 cs. Wilson, Sons & Co., Ld.
**Glucose—**
Stettin, 100 bgs. Wilson, Sons & Co., Ld.
,, 850
Rotterdam, 70 bgs. 3 cks. Hutchinson & Son
**Iron Oxide—**
Hamburg, 5 cks. Wilson, Sons & Co., Ld.
**Kaolin—**
Rotterdam, 71 cks. Hutchinson & Son
**Manganese—**
Hamburg, 3 cks. Wilson, Sons & Co., Ltd.
**Nitrites—**
Rotterdam, 20 cks. W. & C. L. Ringrose
**Ochre—**
Bordeaux, 30 cks.
Rouen, 33 Rawson & Robinson
**Pitch—**
Rotterdam, 88 cks. Hutchinson & Son
St. Petersburg, 23
**Plumbago—**
Antwerp, 17 bgs. Bailey & Leetham
Hamburg, 17 cks. G. Buckton & Son
**Potash—**
Antwerp, 15 pks. Wilson, Sons & Co., Ld.
**Rosin—**
Antwerp, 29 pks. Wilson, Sons & Co., Ld.
**Saltpetre—**
Antwerp, 35 bgs. Wilson, Sons & Co., Ld.
**Soda—**
Antwerp, 7 cks. Bailey & Leetham
,, 11 W. & C. L. Ringrose
**Stearine—**
Rotterdam, 10 bgs. Wilson, Sons & Co., Ld.
**Tallow—**
Antwerp, 15 pks. 87 bgs. Wilson, Sons & Co., Ltd.
**Turpentine—**
Bordeaux, 6 cks. Rawson & Robinson
**Ultramarine—**
Bremen, 9 cks.
Rotterdam, 10 cs. 8 Hutchinson & Son
**Varnish—**
Rotterdam, 3 cks. G. Lawson & Sons
**White Lead—**
Antwerp, 112 cks. Bailey & Leetham
Rotterdam, 26 Hutchinson & Son
,, 10 Sissons Brs. & Co.
,, 20

## GLASGOW.

*Week ending December 8th.*

**Acetone—**
Hamburg, 1 ck.
**Asbestos—**
Montreal, 624 bgs.
**Barium Sulphate—**
Antwerp, 300 bgs.
**Barytes—**
Rotterdam, 46 pkgs. J. Rankine & Son
**Bleaching Powder—**
New York, 100 bxs.
**Chemicals** *(otherwise undescribed)*
Rotterdam, 5 cks. J. Rankine & Son
Hamburg, 1 cs. 1
**Colours—**
Rotterdam, 3 cks.
,, 17 J. Rankine & Son
**Cream of Tartar—**
Marseilles, 22 cks.
**Dyestuffs—**
**Alizarine**
Rotterdam, 129 cks. 58 brls. J. Rankine & Son
**Extracts**
Antwerp, 4 cks.
**Indigo**
Amsterdam, 17 cs.
**Madder**
Marseilles, 30 cks.
**Farina—**
Hamburg, 50 bgs.
**Glucose—**
New York, 200 brls.
**Methyl Alcohol—**
Antwerp, 11 cks.
**Paint—**
Montreal, 1 brl. A. Ferguson & Co.
New York, 1
**Potassium Cyanide—**
Antwerp, 100 cs.
**Rosin—**
Wilmington, 4,584 brls. J. Parker
**Saltpetre—**
Hamburg, 12 cks.
**Tallow—**
New York, 70 tcs.
**Tartar—**
Oporto, 8 cks.
**Tartaric Acid—**
Marseilles, 14 cks.
**Varnish—**
New York, 6 brls.
**White Lead—**
Rotterdam, 74 cks. J Rankine & Son
**Zinc Oxide—**
Antwerp, 25 cks.
**Zinc White—**
Rotterdam, 200 cks.

## TYNE.

*Week ending December 3rd.*

**Alum Earth—**
Hamburg, 18 cks. Tyne S. S. Co.
**Cryolite—**
Copenhagen, 3 cks.
**Limestone—**
Antwerp, 3 crts. Tyne S. S. Co.
**Saltpetre—**
Hamburg, 4 cks. Tyne S. S. Co.
**Sulphur—**
Huelva, 879 t. Scott Bros.
**Tartaric Acid—**
Rotterdam, 1 ck. Tyne S. S. Co.
**Turpentine—**
Libau, 70 brls. Holzapfel & Co.
**Waste Salt—**
Harburg, 215 t.
**Zinc Oxide—**
Antwerp, 25 brls. Tyne S. S. Co.

## GOOLE.

*Week ending November 23rd.*

**Alkali—**
Hamburg, 10 brls.
**Dyestuffs—**
**Alizarine**
Rotterdam, 20 cks.
**Extracts**
Rouen, 20 brls.
**Dyestuffs** *(otherwise undescribed)*
Boulogne, 77 cks. 5 cs. 15 pkgs.
**Farina—**
Hamburg, 1,720 bgs.
Delfszyhl, 3,420
**Potash—**
Dunkirk, 21 cks. 61 dms.
Rotterdam, 20
**Rosin—**
Savannah, 3,049 brls.
**Saltpetre—**
Rotterdam, 100 bgs.
Hamburg, 4 cks.
**Waste Salt—**
Hamburg, 520 t. 906 brls.
**Zinc Oxide—**
Antwerp, 20 brls.

## GRIMSBY.

*Week ending November 26th.*

**Chemicals** *(otherwise undescribed)*
Hamburg, 5 cs.
**Dyestuffs** *(otherwise undescribed)*
Dieppe, 27 cks.
**Farina—**
Hamburg, 680 bgs.
**Glucose—**
Hamburg, 17 pkgs.
**Size—**
Rotterdam, 11 pkgs.
Antwerp, 18 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending December 7th.*

**Alkali—**
E. London, 1 t. 10 c. £6

**Alum Cake—**
Bordeaux, 5 t. 18 c. £15
Rotterdam, 110 3 190

**Aluminous Cake—**
Calcutta, 27 t. 5 c. £85

**Ammonia—**
Antigua, 1 c. £25
Pt. Elizabeth, 6 95
Calcutta, 8 cs. 65

**Ammonium Carbonate—**
Bordeaux, 15 cks. £50

**Ammonium Chloride—**
Yokohama, 5 t. 7 c. £169
Samsoun, 1 32
Constantinople, 15 25

**Ammonium Sulphate—**
Antwerp, 650 t. £6,775
Treport, 10 100
Rotterdam, 35 10 c. 360
Hamburg, 160 3 1,590

**Bisulphide of Carbon—**
Boston, 12 drs. £73

**Borax—**
Hamburg, 4 c. £12
Cape Town, 8 13
Sydney, 2 t. 62
Melbourne, 8 343
Genoa, 9 14

**Calcium Chloride—**
Auckland, 12 c. £21

**Carbolic Acid—**
Hamburg, 9 t. 16 c. £96
Dunedin, 100 drs. 38
Rotterdam, 48 cks. 160

**Caustic Soda—**
New York, 11 c. £14
Hong Kong, 5 8
Launceston, 2 t. 15 41
Melbourne, 10 108
Algoa Bay, 3 1 97
Singapore, 5 6

**Chemicals** *(otherwise undescribed)*
Sydney, 1 cs. £29
Champion Bay, 6 24

**Citric Acid—**
Hamburg, 10 c. £80
Bombay, 1 9
Sydney, 10 77
Melbourne, 1 t. 155
Cologne, 5 40
Rotterdam, 13 110

**Coal Products—**
**Aniline Oil**
Genoa, 10 drs. £320
**Anthracene**
Dusseldorf, 400 cks. £2,029
**Benzol**
Rotterdam, 50 cks. 31 rns. £519
Treport, 12 139
Philadelphia, 20 drs. 256
Calais, 20 142
**Creosote Salts**
Philadelphia, 760 bgs. £125
Antwerp, 1,800 220
**Naphtha**
Calais, 5 cks. 25 rns. £104
**Naphthalene**
Hamburg, 9 cks. £81
Le Treport, 53 59
**Paraffin Wax**
Launceston, 20 bgs. £75
Madras, 20 cks. 37
Melbourne, 20 cs. 29
**Pitch**
Le Treport, 16 cks. £60
Philadelphia, 580 263 bgs. 345
Duisberg, 120 t. 200
Boston, 250 brls. 113

**Tar**
Boston, 500 brls. £207
Melbourne, 20 11
**Toluol**
Calais, 50 rns. £176

**Copper Sulphate—**
Rotterdam, 5 t. 3 c. £71
Launceston, 1 18 30
Bordeaux, 5 9 110
Leghorn, 11 1 150

**Cream of Tartar—**
Launceston, 15 c. £63
Sydney, 1 t. 5 102
Dunedin, 1 5 105
Melbourne, 4 5 355

**Disinfectants—**
Aden, 3 cks. £16
Iquique, 7 26
Hobart, 2 cs. 9

**Fertilizers—**
Antigua, 200 t. £450
Cape Town, 400 3,400

**Manure—**
Barbadoes, 50 t. £365
Morant Bay, 15 122
Santander, 9 17 c. 80
Jersey, 13 100
Guernsey, 13 100
Penang, 75 18 608
Grenada, 5 40
Guadeloupe, 14 17 355
Hamburg, 437 3,080
Treport, 19 19 120
Havre, 69 10 470
Colombo, 10 125
Philadelphia, 1 15 26

**Metallic Sodium—**
Rotterdam, 2 c. £35

**Muriatic Acid—**
Bombay, 8 c. £14

**Nitric Acid—**
Jersey, 24 cbys. £44

**Oxalic Acid—**
Calcutta, 6 c. £9

**Phosphate—**
Oporto, 10 t. £20

**Phosphorus—**
Dunedin, 11 cs. £107

**Potash Salts—**
Townsville, 12 t. 7 c. £1,614

**Potassium Chlorate—**
Gothenburg, 3 t. £225
Sydney, 1 77

**Potassium Cyanide—**
Natal, 5 c. £28

**Saltpetre—**
Amsterdam, 1 t. £31
Corunna, 2 42
Melbourne, 3 15 c. 79
Lisbon, 1 2 23
Rio de Janeiro, 9 12 215

**Sheep Dip—**
Algoa Bay, 5 cs. £30
San Julian, 6 41 pkgs. 92
Natal, 7 206 122
B. Ayres, 1,107 3,321
Auckland, 17 t. 300

**Soda—**
Cape Town, 19 c. £5
Launceston, 5 t. 22
Cape Town, 1 14 6

**Soda Ash—**
Auckland, 3 t. 3 c. £20

**Soda Crystals—**
Madeira, 9 c. £2
Cape Town, 3 t. 11
Shanghai, 1 7 8

**Soda Salts—**
New York, 3 t. 4 c. £35

**Sodium Bicarbonate—**
Bombay, 2 t. 10 c. £15
Reval, 10 4

**Sodium Phosphate—**
Genoa, 2 t. 7 c. £35

**Sodium Sulphate—**
Ghent, 130 t. £195

**Sulphuric Acid—**
Pt. Elizabeth, 12 t. £45
Singapore, 15 cs. £15

**Superphosphate of Lime—**
Oporto, 15 t. £50

**Tartaric Acid—**
Melbourne, 1 t. 10 c. £158
Bombay, 3 16
Dunedin, 5 28

## LIVERPOOL.

*Week ending December 7th.*

**Alkali Waste—**
Antwerp, 10 t. 17 c. £39

**Alum—**
Malta, 1 t. 8 c. £7
Patras, 2 19 15
Bombay, 10 8 1 q. 56
Smyrna, 3 3 3 16
Alexandria, 6 15 41
Beyrout, 2 15 16
Larnaca, 1 3 2 6

**Alumina Sulphate—**
Calcutta, 21 t. 14 c. 1 q. £110

**Aluminous Cake—**
Calcutta, 24 t. 8 c. 2 q. £97

**Ammonia (Liquid)—**
Talcahuano, 7 c. 3 q. £15
Valparaiso, 7 2 14

**Ammonium Carbonate—**
Santander, 10 c. £14
Oporto, 10 14
Copenhagen, 1 t. 3 1 q. 18
Syra, 4 7
Mersyne, 5 8

**Ammonium Chloride—**
Genoa, 2 t. 1 q. £35
Constantinople, 1 4 c. 40
Maceio, 7 13
Marseilles, 15 1 25
Philadelphia, 5 8 163
Corfu, 4 6
Alexandria, 1 2 3 38
Patras, 13 3 22
Larnaca, 2 4

**Ammonium Sulphate—**
Genoa, 101 t. £1,035
Nantes, 32 17 c. 337
Antwerp, 51 12 2 q. 518
Portland, M., 5 3 51
Baltimore, 103 5 3 1,049
Venice, 51 9 516
Rouen, 25 253
Gr. Canary, 20 2 3 211
Las Palmas, 15 1 158
Valencia, 44 17 3 446
Denia, 10 3 2 105
New York, 126 14 3 1,318

**Antimony Sulphide—**
Havana, 2 c. £6

**Arsenic—**
B. Ayres, 2 t. £43

**Asbestos—**
Ensenada, 1 cs.
B. Ayres, 1

**Barium Chlorate—**
Hamburg, 1 t. 19 c. £155
Naples, 2 11

**Bleaching Powder—**
Ancona, 33 cks.
Baltimore, 96 450 dms.
Boston, 955
Calcutta, 173 cs.
Genoa, 70
Ghent, 66
Naples, 9
New York, 471
Cairo, 20 brls.
Chicago, 50 bxs.
Constantinople, 5
Dunedin, 12
Oporto, 8
Philadelphia, 39
Rio de Janeiro, 27
Rotterdam, 6
Rouen, 13
Baltimore, 49 t. 17 c. £412
Boston, 50 5 415
Philadelphia, 39 11 327
New York, 49 17 410

**Boracic Acid—**
Havre, 6 t. 4 c. 3 q. £245

**Borax—**
Rouen, 11 t. 6 c. £377
Antwerp, 15 11 2 q. 415
Santander, 2 6 62
Rosario, 3 1 6
Hamburg, 9 2 2 271
Portland, M., 1 6 3 38
B. Ayres, 2 9 73
Rotterdam, 6 19 207
Stockholm, 18 3 27

**Calcium Chloride—**
Rangoon, 3 t. 1 c. £7

**Carbolic Acid—**
Antwerp, 1 t. £17
Rotterdam, 6 5 c. 258
Stockholm, 12 30
Yokohama, 1 10 67

**Castor Oil—**
C. C. Castle, 5 cs.

**Caustic Potash—**
Chicago, 6 t. 15 c. £159
Sydney, 10 13

**Caustic Soda—**
Bari, 254 dms.
Carril, 4
Oporto, 100
Para, 6
Smyrna, 32
Amsterdam, 241 100 kgs.
Antwerp, 41
Baltimore, 150 135 brls.
Barcelona, 160
Boston, 100
B. Ayres, 10
Chicago, 100
Constantinople, 36
Dubuque, 50
Dunedin, 34
Genoa, 110
Halifax, 11
Hamburg, 250
Kurrachee, 5 kgs.
Lisbon, 45
Malaga, 100
Manilla, 80
Melbourne, 41
M. Video, 40
Nantes, 114
New York, 456
Philadelphia, 50
Portland, Or., 30
Pernambuco, 115
Rio Grande, 66
,, de Janeiro, 22
Rotterdam, 216
Rouen, 34
Samarang, 11
San Sebastian, 129
Seville, 190 37 cks.
Sydney, 36
Talcahuano, 25
Tarragona, 30
Tunis, 195
Yokohama, 200

**Chemicals** *(otherwise undescribed)*
C. C. Castle, 1 cs. £7
Patras, 3 c. 2 q. £6
Beyrout, 1 t. 34
Smyrna, 15 3 28
Christiania, 3 2 6
Alexandria, 2 66
Syra, 5 8
Antwerp, 1 1 30
Odessa, 1 1 30

**China Clay—**
Maranham, 11 cks.
Rio de Janeiro, 22½ t.
Bombay, 95
Boston, 130
Genoa, 50 cks.

**Citric Acid—**
B. Ayres, 5 c. £40

**Coal Products—**
**Alizarine Oil**
Lisbon, 1 ck.
**Aniline Colours**
Boston, 3 kgs.

**Colours—**
Lisbon, 2 cks.
Portland, Me., 2

**Copperas—**
Bombay, 34 t. £65
Patras, 2 7 c. 5
Smyrna, 6 18 12
Rio de Janeiro, 1 18 2 q. 5
San Francisco, 43 12 90
Larnaca, 1 13 1 4

**Copper Sulphate—**
Venice, 20 t. 7 c. 2 q. £290
Bergen, 1 15 26
Oporto, 1 16 31
Rouen, 58 3 873

**Dextrine—**
New York, 20 sks.

**Dried Blood—**
Gr. Canary, 10 t. 5 c. 2 q. £58

**Farina—**
Pernambuco, 20 cs.
New York, 9 t. 12 c. £210

**Flowers of Sulphur—**
Melbourne, 1 t. 10 c. £12

**Guano—**
Seville, 1 t. 16 c. £17

**Gypsum—**
New York, 35 t. 18 c. £132

**Iron Sulphate—**
Smyrna, 6 t. 8 c. 2 q. £13

**Lime—**
Pram Pram, 20 brls.

**Limestone—**
New York, 4 cs.

**Magnesia—**
Valencia, 10 cs.

**Magnesium Chloride—**
Halifax, 6 t. 9 c. £18

**Magnesium Sulphate—**
Constantinople, 10 brls.

**Manganese—**
Baltimore, 28 t. 11 c.
Fiume, 20

**Manure—**
Bordeaux, 5 t. 10 c. £35
Las Palmas, 10 1 q. 5

**Metallic Sodium—**
Rotterdam, 3 t. 1 c. 1 q. £615

**Mineral White—**
Kingston, Jam., 20 cs.

**Muriate Salts—**
Genoa, 2 t. 7 c. £42

**Paint—**
Alexandria, 280 kgs.
Antwerp, 14
Bathurst, 52
B. Ayres, 32 cks. 40 dms.
Callao, 8
Constantinople, 3 pkgs.
Iquitos, 2
Jaffa, 4
Lisbon, 40 16
Manilla, 500 20 25 dms.
N. York, 10 cs. 1 bx.
Opobo, 6 1 12
Para, 5
Paranagua, 33 10 brls.
Pernambuco, 15 20
Philadelphia, 100
Pt. Said, 30
Rio de Janeiro, 8 cks.
St. John's, Nfld., 6 2 cs.
Sierra Leone, 32 3 1
Singapore, 8
Volo, 2
Batavia, 6
Benin, 4 cs. 2 pkgs. 1 4 dms.
Brass, 1
Gr. Canary, 10
Havana, 5
Lanzarote, 16 1
Rosario. 20 bxs.
Rotterdam, 31
Santiago, 1
Warri, 4

**Painters' Colours—**
Baltimore, 100 cks. 50 brls.
Bilbao, 14
Callao, 10
Carthagena, N.G., 18 kgs.
Iquique, 110 cs.
Manilla, 18
Maranham, 6 2 21 2
Nassau, 1 6 20
Capetown, 9 2
Montreal, 3 6 dms. 5
Pt. Natal, 4 9 133

**Paraffin Wax—**
Para, 25 cs.
Patras, 71
Venice, 50
Odessa, 5
Rio de Janeiro, 10
San Sebastian, 20 bgs.
Smyrna, 5

**Phosphorus—**
Vera Cruz, 4 cs. £44
Havana, 7 90
Hiogo, 20 257
Shanghai, 12 120
Yokohama, 5 64
Kobe, 6 60

**Pitch—**
Antofagasta, 10 brls.

**Potash—**
B. Ayres, 10 c. £10

**Potassium Bicarbonate—**
Alexandretta, 4 c. £9
B. Ayres, 10 2 q. 22

**Potassium Bichromate—**
Havana, 1 c. 1 q. £5
Rio de Janeiro, 14 3 32

**Potassium Chlorate—**
Stockholm, 7 t. 10 c. £405
Copenhagen, 2 10 140
Trieste, 10 30
Antwerp, 6 9 2 q. 194
Odessa, 1 57
Philadelphia, 5 228
Vera Cruz, 2 127
Genoa, 2 10 142
Rio de Janeiro, 1 15 102
Melbourne, 1 2 1 57
Sydney, 12 546
Naples, 2 10 111
New York, 37 10 2,064
Havana, 1 10 84
Rotterdam, 15 42
Boston, 7 10 429
Leghorn, 1 56
Hiogo, 37 10 1,982

**Potassium Carbonate—**
Chicago, 3 t. 17 c. £80
New York, 19 7 382
Rio de Janeiro, 5 5

**Salt—**
Belize, 182 t.
Boston, 400
B. Ayres, 12¾
Capetown, 25
Gothenburg, 350
Laurvig, 307
Marstrand, 400
Melbourne, 77 2 c.
New York, 153 17
Para, 100
Paranagua, 8
Pernambuco, 7
Portland, Or., 624 12
Rosario, 5
St. John's, Nfld., 5
Santos, 5
Trinidad, 4
Valparaiso, 201 2
Amsterdam, 146
Antwerp, 600
Bakana, 12½
Brisbane, 299
C. C. Castle, 12½
Copenhagen, 98
Ghent, 100
Matadi, 20
Mossel Bay, 17¾
New Orleans, 400
Opobo, 62½
Pt. Elizabeth, 17¾
Rouen, 10
Saigon, 11
Salt Pond, 43¾
Sierra Leone, 175¾

**Salt Cake—**
Philadelphia, 326 t. 11 c. £782

**Saltpetre—**
Pernambuco, 4 t. 4 c. 2 q. £102
Gr. Canary, 2 3 2 38
Paranagua, 14 3 16
Melbourne, 1 22
Cabadello, 1 9 31
Almeria, 16 1 17
Larnaca, 2 10 52

**Sheep Dip—**
B. Ayres, 11 t. 3 c. 1 q. £365
Bombay, 1 5 40
Calcutta, 4 6

**Soap—**
Alexandria, 3 cs.
Bombay, 3,260 bxs. 37 489 bdls.
Calcutta, 5 5 11 tcs.
C. C. Castle, 53
Capetown, 50
E. London, 100 78
Kurrachee, 1,250 10
Montreal, 12
New York, 890 84 5 cks.
Pernambuco, 1
Piræus, 70 bdls.
Pt. Elizabeth, 45
St. Mœhents, 24 kgs.
,, John's, Nfld., 255
Savanilla, 2
Toronto, 1,000
Trinidad, 2,170 1
Accra, 140
Addah, 105
Algoa Bay, 50
Alligator Pond, 50
Annatto Bay, 30
Antigua, 115
Antwerp, 750
Appam, 125
Axim, 100
Barbadoes, 1,282
Benin, 100
Chama, 30
Curacao, 860
Drewin, 112
Gr. Canary, 460
Grenada, 100
Havana, 1
Hong Kong, 200
Jamaica, 2,320
Kingston, Ja., 1,200
Lausanne, 205
Madras, 11
Macassar, 1,585 1
Manaos, 300
Monrovia, 40
Montego Bay, 125
Natal, 100
New Orleans, 150
Opobo, 500
Para. 200
Pt. Antonio, 50
,, Natal, 20
Pram Pram, 50
Rangoon. 750
Rotterdam, 395
St. Kitts, 400
,, Nazaire, 1,500
Salt Pond, 50
Shanghai, 1,645
Sierra Leone, 125
Singapore, 30
Sourabaya, 1,400

**Soda Alkali—**
Catania, 40 brls.
Dunedin, 20
Leghorn, 75
Messina, 8
Smyrna, 35

**Soda Ash—**
Baltimore, 389 cks. 2,300 bgs
Batavia, 5
Beyrout, 100 brls.
Bombay, 7
Boston, 431 1,856
Brisbane, 93 140 kgs.
Hamilton, 480 bgs.
Hiogo, 25
Latakia, 100
Melbourne, 124
New York, 818 15,944
Pt. Colborne, 27
,, Natal, 20 kgs.
Rio de Janeiro, 90
San Francisco, 317
Yokohama, 150
Zante, 909
Adelaide, 42
Amsterdam, 10
Carthagena, Sp., 11 25
Constantinople, 18
East St. Louis, 110
Halifax, 23
Mazallan, 30 bgs.
Monte Video, 204
Oporto, 38
Philadelphia, 1,156 1,834
Rio Grande, 30
Sydney, 63

**Soda Crystals—**
Alexandria, 30 brls.
Bombay, 40 kgs.
Boston, 280
Calcutta, 14
Constantinople, 25
Gibraltar, 137
Hong Kong, 50
Iquique, 50
Kurrachee, 67
Malaga,
Malta, 50
New York, 224 160
Pt. Elizabeth, 104
Smyrna, 100
B. Ayres, 25
Genoa, 14
Halifax, 25
Natal, 20
Seville, 18

**Sodium Biborate—**
Antwerp, 4 cks.
Portland, M., 10 brls.
Rotterdam, 12

**Sodium Bicarbonate—**
Alicante, 40 kgs.
Barcelona, 90
Bombay, 30
Bordeaux, 80
Boston, 50 cks.
Canterbury, 40
Danzig, 11
Dunedin, 50
Hamburg, 20 30
Melbourne, 1,104 8
Nantes, 40
Odessa, 800
Santander, 30
Yokohama, 1,800
Amsterdam, 85 18
Antwerp, 16
Beyrout, 20
B. Ayres, 50
Catania, 25
Christiania, 25
Genoa, 60
Halifax, 50
Malta, 7
M. Video, 50
Oporto, 30
Smyrna, 180
Stockholm, 60 2
Venice, 25
Wellington, 60

**Sodium Bichromate—**
Melbourne, 5 kgs.
Rotterdam, 1 ck.

**Sodium Carbonate—**
New York, 197 brls.
Amsterdam, 50
Baltimore, 105 cks.
Boston, 336

**Sodium Chlorate—**
Lisbon, 1 ck.
Boston, 50 kgs.
Newfairwater, 10 4 cks.
New York, 100

**Sodium Silicate—**
Bilbao, 20 brls.
Melbourne, 10
Valencia, 35

**Sodium Sulphate—**
Odessa, 10 cks.

**Stearine—**
Savanilla, 20 brls.

**Sulphate of Lime—**
Fiume, 10 t.

**Sulphur—**
Calcutta, 10 t.
Boston, 30
Antwerp, 5 2 c.
Rouen, 55 2
Santa Cruz, 18

**Superphosphate—**
Valencia, 50 t. 9 c. 1 q.
Nantes, 30 1
Gr. Canary, 10

**Superphosphate of Lime—**
Valencia, 126 t.
Gr. Canary, 10 1 c. 3 q.

**Tallow—**
Attoaboe, 1 cs.
Bayin, 2
C. C Castle, 10 4 tcs.
Maranham, 1 ck.
Oporto, 31 brls.
Seville, 61 bdls.
Stettin, 30 cks.
Axim, 5

**Tar—**
Manilla, 31 cks.
St. John's, Nfld., 4 t. 16 c.
Penang, 5

**Tartaric Acid—**
Alexandria, 2 c. £12
Talcahuano, 13 91
Havana, 1 2 q. £9

**Turpentine—**
Sierra Leone, 8 c. £9
B. Ayres, 5 crts. 10

**Varnish—**
Bilbao, 4 dms.
B. Ayres, 8 cs.
Manilla, 4
New York, 12

**White Lead—**
B. Ayres, 12 cks.

**Zinc Chloride—**
Bombay, 5 t. 15 c. 1 q. £81

**Zinc White—**
Rotterdam, 14 cks.

## HULL.

*Week ending December 3rd.*

**Benzol—**
Ghent, 15 cks.
Rotterdam, 25

**Bleaching Powder—**
Bombay, 210 dms. 36 cks.
Harlingen, 33
Stettin, 30

**Caustic Soda—**
Bombay, 37 dms.
Helsingfors, 4 kgs.
Liban, 37
Trieste, 42

**Chemicals** *(otherwise undescribed)*
Abo, 4 cs.
Boston, 20 cks.
Bombay, 1,635
Bremen, 5
Copenhagen, 2 20 kgs. 2 pks.
Christiania, 5
Dunkirk, 14
Drontheim, 308 slbs.
Flushing, 24
Gothenburg, 6 20 150 pkgs.
Hamburg, 126 22 12
Helsingfors, 1
Kurrachee, 1,345
Konigsberg, 8 30
Rotterdam, 108 8 4
Reval, 4 3
Stettin, 24 30
Stockholm, 4 40 30
Venice, 2

**Cottonseed Oil—**
Antwerp, 1,594 c.
Bordeaux, 137
Bremen, 207
Dunkirk, 107
Flushing, 298
Fiume, 182
Gothenburg, 142
Hamburg, 2,233
Konigsberg, 100
Rotterdam, 3,723
Stettin, 417
Stockholm, 35
Stavenger, 40
Trieste, 1,818

**Creosote—**
Rotterdam, 40 cks.

**Dyestuffs** *(otherwise undescribed)*
Boston, 13 cks.
Hamburg, 7

**Farina—**
Rotterdam, 8 cks.

**Linseed Oil—**
Antwerp, 100 c.
Bombay, 438
Bergen, 42
Copenhagen, 44
Christiania, 148
Drontheim, 181
Hamburg, 1,439
Hango, 103
Stavanger, 41

**Manure—**
Bordeaux, 10 t.
Dunkirk, 21
Hamburg, 10
Rotterdam, 31

**Mineral White—**
Bergen, 50 bls.
Rotterdam, 500
St. Petersburg, 490 bgs.

**Naphtha—**
Copenhagen, 5 dms.

**Painters' Colours—**
Antwerp, 2 cs. 23 cks. 110 dms. 26 pkgs.
Amsterdam, 10
Boston, 15 50
Bombay, 79 13 537
Bordeaux, 5
Bremen, 6
Copenhagen, 20
Dunkirk, 1
Flushing, 1
Hamburg, 1 14 14
Helsingfors, 1
Konigsberg, 10
New York, 152
Rouen, 49
Rotterdam, 2 5
Reval, 1
Stettin, 26
Stockholm, 2 10
Stavanger, 1

**Pitch—**
Antwerp, 67 . c.
Dunkirk, 203

**Salt—**
Helsingfors, 50 bls.

**Size—**
Flushing, 18 cks.

**Soap—**
Rotterdam, 41 cs.

**Superphosphate—**
Copenhagen, 190 t.

**Tallow—**
Stockholm, 5 cks.

**Tar—**
Amsterdam, 6 cks.
Flushing, 4 cs.
Hamburg, 14
Helsingfors, 80
Stettin, 4
Stockholm, 10

**Varnish—**
Antwerp, 9 cks.
Bombay, 75 dms.
Copenhagen, 10 cs.
Gothenburg, 1
Harlingen, 2
Stettin, 3

## GLASGOW.

*Week ending December 8th.*

**Acetic Acid—**
Sydney, 248 glns £23

**Ammonium Sulphate—**
Antwerp, 50 t. 16½ c. £500
New York, 5 51

**Bichrome—**
Antwerp, 20 t. 8 c. £708
Rouen, 5 3 200

**Bleaching Powder—**
Hong Kong, 15 t. £170
Melbourne, 9 4½ c. 75

**Boracic Acid—**
Melbourne, 1 t.

**Borax—**
Natal, 2 t. £62
Melbourne, 2 3 c. 65

**Caustic Soda—**
Brisbane, 15 t. 9½ c. £157

**Chemicals** *(otherwise undescribed)*
Rangoon, 37 t. 4 c. £217

**Chloroform—**
Rangoon, 1¾ c. £40

**Coal Products—**
**Aniline Dyes**
Calcutta, 7¾ c. £109
**Benzol**
Rotterdam, 7 dms. £70
**Creosote Oil**
Boston, 42 t. 3 c. £119
**Pitch**
Antwerp, 150 t. £225
Boston, 81 6 c. 140
**Tar**
Singapore, 7 t. 10 c. £40
Rangoon, 44 13 132
Boston, 25 55

**Dextrine—**
Melbourne, £40

**Dyestuffs—**
**Cutch**
Melbourne, 19¾ c. £40
**Extracts**
Melbourne, 1 t. 13 c. £81
**Fustic Extract**
Portland, Me., £20
Melbourne, 9¾ c. £21. 12s.

**Linseed Oil—**
Singapore, 18¾ c. £22
Cape Colony, 4 . 1½ 82
Brisbane, 18 £23. 10s.

**Magnesium Sulphate—**
Sydney, 7 t. 19½ c. £75

**Manure—**
Malaga, 10 t. £70
Brisbane, 11 6 c. 90

**Paint—**
Singapore, 4 . 12 c. £39
Cape Colony, £37. 7s.
Rangoon, 4 ¾ 67
Brisbane, 16¾ 20
New York, 8 19½ 163
Adelaide, 1 5½ £33. 10s.
Melbourne, 5 9 £136. 10s.

**Painters' Colours—**
Hong Kong, £117
Shanghai, 5 . 4 c. 63
Sydney, 47
Antwerp, 1 18 55
Rotterdam, 2 cks. 15

**Paraffin Wax—**
Japan, 46,352 lbs. £539
Cape Colony, 9 t. 19 c. 263
Melbourne, 1 5½ 40

**Potassium Bichromate—**
Japan, 9 t. 11 c. £381
Oporto, 8 10 338
Rouen, 11 12½ 368

**Potassium Prussiate—**
Rouen, 5 t. 7 c. £298

**Rosin—**
B. Ayres, 42 t. 7 c. £190

**Rosin Oil—**
Melbourne, 3 t. 12 c. £22

**Soap—**
Natal, 2 t. £34

**Sodium Sulphate—**
Christiania, 5 cks. £5

**Sulphated Salt—**
Brisbane, 3 t. 5½ c. £50

**Tallow—**
Rotterdam, 3 t. 15 c. £100

**Varnish—**
Sydney, 7 c. £22

**White Lead—**
Sydney, 8 t. £210
Cape Colony, 10 4 c. 216
Natal, 6 19 135
Brisbane, 1 2 22

## TYNE.

*Week ending December 3rd.*

**Alkali—**
New York, 194 t. 14 c.
Antwerp, 9 14
Leghorn, 9 19
Genoa, 5 5
Savona, 25 6
Copenhagen, 2 18
Amsterdam, 42 15

**Ammonium Sulphate—**
Hamburg, 20 t.
Rotterdam, 30

**Antimony—**
New York, 45 t.
Christiania, 6 c.
Copenhagen, 10

**Arsenic—**
Leghorn, 2 t. 3 c.

**Barium Binoxide—**
Rouen, 4 t. 9 c.

**Barium Hydrate—**
Antwerp, 75 t. 6 c.

**Barytes—**
New York, 92 t. 10 c.
Hamburg, 57 12
Rouen, 14 14

**Bleaching Powder—**
New York, 112 t. 17 c.
Antwerp, 26 13
Hamburg, 20 1
Christiania, 10
Leghorn, 5 1
Genoa, 4 19
Odense, 6
Copenhagen, 29 10
Rotterdam, 10 12
Lisbon, 5 1
Amsterdam, 82 18
Ghent, 15 1
Danzig, 10 12
Drontheim, 10

**Caustic Soda—**
New York, 2 t. 18 c.
Antwerp, 13 8
Hamburg, 15 13
Christiania, 5 16
Aarhuus, 6
Genoa, 3 3
Copenhagen, 13 12
Amsterdam, 26

**Linseed Oil—**
Christiania, 6 t. 2 c.

**Litharge—**
New York, 10 t.
Antwerp, 3
Hamburg, 12 c.
Christiania, 11
Genoa, 1 4
Amsterdam, 1 3

**Magnesia—**
New York, 2 t. 18 c.
Hamburg, 18
Rouen, 9

**Oxalic Acid—**
Leghorn, 13 c.

**Paint—**
Hamburg, 1 c.
Ergasteria, 12
Trieste, 2 t. 10

**Soda—**
New York, 327 t. 1 c.
Nakskov, 10 6
Amsterdam, 21 16

**Soda Ash—**
Odense, 18 t. 15 c.
Copenhagen, 4 16
Lisbon, 27 12

**Sodium Hyposulphite—**
Naples, 14 c.
Catania, 2 t. 5

**Sodium Sulphate—**
Odense, 1 t. 4 c.

**Sulphur—**
Christiania, 10 t.
Rotterdam, 150
Ghent, 5

**Superphosphate—**
La Rochelle, 360 t. 5

**Tallow—**
Hamburg, 1 t. 9 c.

**White Lead—**
New York, 20 t. 6 .
Christiania, 5
Lisbon, 3 1

## GOOLE.

*Week ending November 23rd.*

**Alkali—**
Dunkirk, 30 dms.

**Benzol—**
Dunkirk, 48 cks.
Boulogne, 50
Rotterdam, 200

**Chemicals** *(otherwise undescribed.)*
Ghent, 10 cks.
Hamburg, 52
Rotterdam, 15

**Coal Products** *(otherwise undes.)*
Dunkirk, 11 cks. 3 pkgs.
Ghent, 20 tins.

**Dyestuffs** *(otherwise undescribed)*
Antwerp, 2 cks. 4 dms.
Ghent, 11 2 tins.
Hamburg, 3

**Manure—**
Boulogne, 134 bgs.
Bruges, 200
Ostend, 170

**Pitch—**
Antwerp, 451 t.
Dunkirk, 100
Rouen, 6 cks.

**Superphosphate—**
Jersey, 135 t.

## GRIMSBY.

*Week ending November 26th.*

**Alum—**
Barcelona, 10 t.

**Chemicals** *(otherwise undescribed)*
Dieppe, 5 cks. 88 pkgs.
Hamburg, 10

**Coal Products** *(otherwise undesc'd.)*
Dieppe, 107 cks.

# PRICES CURRENT.

WEDNESDAY, Dec. 14th, 1892.

Prepared by Higginbottom and Co., 116, Portland Street, Manchester.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids :—** | | | | |
| Acetic, 25 % and 40 % | per cwt. | 7/- & | 11/- | |
| ,, Glacial | ,, | | 50/- | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 1¾ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3¼ |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 11 |
| Sulphuric (fuming 50 %) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11½ |
| Arsenic, white powdered | nett per ton | 12 | 10 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 1 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 20 | 10 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & | 33/- | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 10 | 2 | 6 |
| ,, ,, (grey) Hull | ,, | 10 | 1 | 3 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6 |
| Aniline Salt ,, | ,, | 0 | 0 | 5⅞ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to | 75/- | |
| Bleaching Powder, 35 % | nett ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 3 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to | 35/- | |
| **Coal Tar Dyes :—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8 |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 0 |
| Benzol, 90 %-nominal | per gallon | 0 | 1 | 7 |
| ,, 50/90 ,, | ,, | 0 | 1 | 4 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 5¾ |
| ,, (crude 60°) | per gallon | 0 | 1 | 8 |
| Creosote (ordinary) | ,, | 0 | 0 | 1¼ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 1¾ |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 0 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 1 | 0 |
| Coke-oven Oils (crude) | ,, | 0 | 1 | 1 |
| Copper | per ton | 46 | 17 | 6 |
| ,, Sulphate | ,, | 16 | 0 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 10 | 0 |
| ,, Litharge Flake (ex ship) | ,, | 13 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| ,, Nitrate | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 6 | 5 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 0 |
| Naphtha (Wood), Solvent | ,, | 0 | 3 | 10 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 4 | 7½ |
| **Oils :—** | | | | |
| Cotton-seed | per ton | 18 | 5 | 0 |
| Linseed | ,, | 19 | 5 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 7 | 6 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 | 0 |
| Silver (metal) | per oz. | 0 | 3 | 2⅜ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 2 | 6 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 5 | 15 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 2 | 6 |
| ,, Acetate (ex-ship) | ,, | 18 | 0 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 15 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Borate (Borax) | net, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | net pr. ton (10 ton lots) | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, | 11 | 0 | 0 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, | 10 | 2 | 9 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, | 9 | 0 | 0 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, | 8 | 15 | 0 |
| ,, Bicarbonate | ,, | 6 | 10 | 0 |
| ,, Hyposulphite | ,, | 7 | 10 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 9 |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¾ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 12 | 6 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7¼ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7½ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone : Best Quality (nominal) | ,, | 4 | 10 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 94 | 10 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 18 | 2 | 6 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# CHEMICAL TRADE JOURNAL

AND

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**LATE ADVERTISEMENT.**

THE Middleton Corporation invite TENDERS for about 300 tons of TAR, now lying at the Gas-works, Middleton.

Tenders to be addressed to the Chairman of the Gas Committee, endorsed "Tender for Tar," and delivered at my Office, on or before Wednesday, the 18th of January, 1893.

FREDERICK ENTWISTLE,
Town Clerk.

Town Hall, Middleton,
Near Manchester, Dec. 16, 1892.

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## CURRENT TOPICS.

### AGREEMENTS AND DISAGREEMENTS.

WE had occasion about four months ago to refer to the question of employment agreements, and just at that time a very important agreement case was being heard, the judgment in which was exactly opposite to that delivered in the case to which we made particular reference. There appears, however, to be a very probable likelihood of the difference between the judgments being removed.

The case which was contemporaneous to the one which attracted our particular attention in the past, was the action brought by the Maxim-Nordenfelt Gun and Ammunition Co., Ltd., against Mr. T. Nordenfelt.

After the hearing of this case in the Chancery Division of the High Court of Justice, Mr. Justice Romer came to the conclusion that the agreement was too wide, and also that the restrictions contained therein, extending as they did over a period of five and twenty years, were too great, and consequently he gave judgment for the defendant.

The plaintiff company appealed, however. In the hearing of the appeal, a report of which is given elsewhere in these columns, it transpired that the defendant declined the post of manager (which was stated to be worth £2,000. a year) after holding the same for two years, and shortly after doing so entered into business with the Société Cockerill of Belgium.

In the opinion of Lord Justice Lindley, this was a breach of the contract the defendant made with his company, as he made arrangements to do business with a rival company, an act which was a distinct infringement of his covenant. This covenant, moreover, was, in the opinion of his lordship, a reasonable one, as he did not see any incongruity in a man skilled in several businesses, selling one of the same and contracting not to compete with the purchaser of his business for a period of twenty-five years. It was true the defendant would, at the end of that time, be seventy-one years of age, but he might live and carry on business long after that age, apart from other businesses which he might be following.

Lord Justice Bowen, however, pointed out another point in addition to the foregoing.

He drew attention to the fact that the enforcement of this particular contract was not opposed to public policy. There were several rivals in the field, and he thought it right that the plaintiffs should be able to protect themselves against the possibility of a new rival arising through the instrumentality of the same person that they had purchased their business from. By being empowered to do so, the public were not likely to be victimised by the creation of a baneful monopoly, though the question of the legality of syndicates and trusts was one which, he hinted, might some day demand the close attention of the Courts of Justice.

It will thus be seen that the judgment of Mr. Justice Romer was reversed, but the matter will not be finally settled

until the decision of the House of Lords is made known, as the defendant has appealed against the decision of the appeal court. It is singular that a tolerably close acquaintance with legal proceedings seems to show that agreements are one of the most prolific sources of disagreement, and such being the case the decision of the Lords in this particular action will be a very important and far-reaching one.

THE MINERAL OIL QUESTION.

We are pleased to see that the lowness of the flashing point of the majority of the mineral oil used in this country is attracting the attention which the question merits. Almost every day that passes testifies to the urgency of the need for improvement, by establishing a higher flash point, and we trust that the efforts which are being made with so much energy in Scotland, through the agency of the Society of Chemical Industry and the Chemical Section of the Chamber of Commerce, will not be unproductive of permanent good. There seems to be a singular unanimity of opinion on the point, but there is one suggestion thrown out in the report of the proceedings of the Scottish section of the Society of Chemical Industry in last week's issue, to which we would add a proviso.

It may, undoubtedly, be desirable that the further prosecution of this matter be placed in the hands of an independent body, but we think it a mistake to contemplate anything in the nature of a Commission, before which chemists shall be called to give evidence. It was through adopting this method of procedure that the present unsatisfactory state of affairs was brought about, and it is beginning at the wrong end to model a reform on precisely the same lines as previously pertained, making, perhaps, a slight exception for the better in regard to the qualifications and competency of the new adjudicators. If a committee is to be formed to hear and consider evidence, chemists are the fittest of the fit for such a purpose, and chemists they should be.

## SOCIETY OF CHEMICAL INDUSTRY.

NOTTINGHAM SECTION.

THE opening meeting of the Session 1892-93 of the above section of the Society of Chemical Industry was held at University College, Nottingham, on the 14th inst., Mr. L. Archbutt, F.C.S., in the chair. A paper on a matter that is of particular importance to the chemical trade, namely,

THE USE OF CHEMICAL LEAD,

was read by Mr. F. J. R. Carulla, who pointed out how little those who were not manufacturing chemists seemed to realize the useful *rôle* that lead plays in the construction of apparatus for numerous chemical processes, and particularly where sulphuric acid has to be made or is employed. When Percy, in his classical treatise on lead only refers to this metal in relation to the use made of it by the chemist in connection with vitriol chambers, which reference is only half a dozen lines long; whilst other authors of metallurgical books omit the subject altogether, general ignorance in this regard may well be excused.

After giving a short account of the recent interesting experiments of Lunge and Schmid to ascertain the quality of lead best suited for various chemical operations, the author stated that the results show that chemical lead for general purposes should be the purest that can be made (a point on which opinions greatly vary), but a special quality with 0·1 to 0·2 per cent. of copper in its composition is preferable in certain exceptional cases when very hot vitriol, at temperature above 200°C., has to be dealt with. The lead mills might well turn this knowledge to account and manufacture the two qualities of leads, for the experiments were so numerous, upwards of a thousand tests having been made during a period extending over two years, that there is no room for doubting the results.

Mr. Carulla referred to the advantage of protecting acid chambers from the weather, and gave an account of the effects produced on lead by the concentration of acid in pans of this metal, alluding to the danger of overheating. As a protection against this contingency, Mr. Carulla has adopted the plan (for which he has applied for a patent) of inserting a good conductor, such as a copper sheet or plate between the bottom of the lead pan and the cast-iron bed on which it rests, so as to conduct away any local heat, and, as it were, "average" the heat all over the bottom of the lead pan. He stated that he was at present operating with a pan 6 feet by 6 feet with a copper plate of the same dimensions $\frac{3}{16}$in. thick placed under it, which so far seemed to afford the desired protection, and in no way diminished the efficiency of the apparatus as an evaporator and concentrator. A brief reference was made also to the use of lead saturators for the production of sulphate of ammonia.

The importance of geometrical knowledge to the man who is entrusted with the manufacture of lead vessels and apparatus generally, is obvious, and Mr. Carulla referred to Mr. Levinstein's address to the Manchester section of the Society of Chemical Industry, agreeing with that gentleman in the importance of technical schools imparting practical knowledge to students, who may subsequently have to direct manufacturing operations, but he added that there is also an equal if not greater need for working men, the actual producers, to acquire the elementary principles of science. Mr Carulla, in concluding, said: "As a knowledge of geometry is equally useful to the girl who has to cut a dress from the piece, or to the man who has to shape a piece of wood or metal, one may be permitted to express the opinion that practical geometry (not Euclid) should form a branch of elementary education, and be taught to every boy and girl in the land. This might go hand-in-hand with free-hand drawing, the universal teaching of which has already been advocated but desirable as efficiency in this art may be, in his opinion its utility was far below that of geometrical knowledge for practical purposes The inaccurate measurements frequently given by men who, one would think, might be trusted, encourages the belief that a little geometrical training in their younger days might have made them more reliable. As the chemical industry is so intimately bound up with the mechanical arts, of which geometry is the very essence, it may be inferred that a more general knowledge of the principles of this science would put an end to many imperfect methods that promote waste. Doubtless, we want good officers for the technical contest in which, as a nation, we are engaged against the other countries of the world, but although it is not impossible to succeed with imperfect soldiers, the result will be more glorious if we can lead good men to victory."

SCOTTISH SECTION.

The greater part of the discussion on Mr. Steuart's paper on the "Flash point and Heat of Burning of Mineral Oils," was of a favourable nature, but there were one or two points to which Mr Steuart answered, in touching upon which he said:—In regard first of all to the comparative safety of metal and glass lamps Mr. Ivison Macadam thought that Messrs. Abel and Redwood's report proved that glass was the more dangerous, as there were more accidents with the glass lamps, but for the numbers given to be of any use for that purpose it would be necessary to know the comparative numbers of glass and metal lamps in use in London among the poor people. Unless this is known the numbers give no information.

Mr. Ivison Macadam: You are quite right, sir, quite so.

Mr. Steuart: In regard to the fractionation of the oil by the wick in a lamp while burning, he said that in his experiments he only filled the lamp once; but in practice the residue in a lamp is left there, and more oil is added to it, and as time goes on the oil gets concentrated and heavier. The full effect was not brought out in his experiments, for as stated in his paper, a one day experiment does not give the full extent of the evil, as the evil is cumulative.

In regard to the personalities in his paper, he did not know what to say. (Laughter). When he started the matter first about a year ago he was told by his employers to leave the matter alone. In time he obtained the half consent of one of them to read a paper on the subject, and he used that half consent to bring forward the question as a member of the community. It was only within a week of the reading of his paper that he understood he had the sympathies of his employers. When stating the subject then, he did not expect to be backed up either by them or by the trade.

He was pleased to find the trade had backed him up, however. If he had known that such had been the case he would probably have written his paper in a different tone—(laughter)—because at the time, he wrote it under a great feeling of impotence.

This was not, however, he contended, a matter to be decided by rival trades. A low flashing point is a convenience to the Scotch manufacturers as well as the foreigners, and although the exclusion of low flashing foreign oils would help them more, still the battle is not one which should be left to them to fight. It is for the representatives of the Government to take it up in the interests of the public.

It was impossible to discuss the scientific question without making reference to the report of Messrs. Abel and Redwood and if this has not been done, the meeting in discussing the subject would have really been passing judgment upon the report, whether they acknowledged

the fact or not. If, however, he had been harming a good cause by discussing it foolishly, that was no reason for wiser people keeping aloof, but on the contrary, all the more reason why they should come forward and take it up. As a matter of fact he would be very glad if other people would take the matter over, for the task he had undertaken had been by no means a pleasant one for him. (Applause).

## THE SCOTTISH OIL TRADE.

THE Standard Oil Company has intimated another reduction of ¼d. per lb. in the price of paraffine scale, and producers have been obliged to follow the cut on all their scale products. Scotch hard scale is now no better than 1¾d. to 1$\frac{13}{16}$d. per pound; some sellers have offered to deal at the former figure without finding buyers This latest reduction has been mainly brought about by the demoralisation which exists in the candle trade by the underhand dealing which is alleged in that connection, and by the difficulty which importers and some local concerns experience in getting rid of their stock of scale. Running contracts participate in the reduction, which came into force on December 9th. Since the break up of the producers' combination paraffine scale has been lowered 1½d per pound, nearly 40 per cent. On the ton of scale that represents a loss of over £10. per ton, and on the Scotch make alone the difference to the trade compared with what would have been the yield for one year had the price been maintained at its old level is between £200,000. and £250,000. Following on the reduction in the price of paraffine scale, the candlemakers have reduced their list prices for white candles by 6d. and the yellows by 3d.—each per dozen pounds. The reduction in whites is equal to double what has been taken off wax One of the Scotch companies connected with the associated companies has taken off ¼d. per gallon off burning oil, although the demand at present is reported good.

## THE GAS SUPPLY OF LONDON AND LEEDS.

LONDON.

THE quality of the gas supplied to the city of London for the week ending December 3rd, 1892, was practically faultless. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showing only one deficiency in illuminating power, and that was against the Gas Light and Coke Company, the gas from which Company tested on the 1st December 15·9 candles instead of 16. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

| Company. | No. of districts tested. | Illuminating power (in stand. sperm candles) Mean average. | Sulphur. Grains in 100 cb. ft. Mean average. | Ammonia. Grains in 100 cb ft. Mean average. | Sulphuretted hydrogen. |
|---|---|---|---|---|---|
| Gas Light and Coke Co. | 14 | 16·32 | 11·43 | 0·29 | Nil. |
| South Metropolitan Gas Co. | 6 | 16·36 | 12·5 | 0·58 | Nil. |
| Commercial Gas Co. .. | 2 | 16·35 | 8·4 | 0·1 | Nil. |

For the week ending Dec. 10th, the results were equally good, only one return, and that against the South Metropolitan Gas Co., being made. The results calculated as above were:—

| Company. | No. of districts tested. | Illuminating power (in stand. sperm candles). Mean average. | Sulphur. Grains in 100 cb. ft. Mean average. | Ammonia. Grains in 100 cb. ft. Mean average. | Sulphuretted hydrogen. |
|---|---|---|---|---|---|
| Gas Light and Coke Co. | 14 | 16·27 | 11·25 | 0·25 | Nil. |
| South Metropolitan Gas Co. | 6 | 16·36 | 13·23 | 0·36 | Nil. |
| Commercial Gas Co. .. | 2 | 16·35 | 8·1 | 0·1 | Nil. |

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas on an average of three days.

LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas examiner for Leeds, for the month ending December 8th, 1892, the proportion of total sulphur contained in the Leeds gas has averaged 15·71 grain per 100 cubic feet. The following are the results of tests made at the works in grains per 100 cubic feet:—

| Place. | Date when Tests were made. Nov., 1892. | Dec., 1892. | Total Sulphur. | Ammonia. | Carbonic Acid. Weight. | Volume. |
|---|---|---|---|---|---|---|
| Meadow Lane.... | 18. 22. | 2. 8. | 12·47 | 0·65 | 48·90 | 0·06 |
| New Wortley .... | 17. 25. 29. | — 5. | 17·35 | 1·07 | 48·90 | 0·06 |
| York Street ..... | 16. 24. | 1. 7. | 18·00 | 1·75 | 32·60 | 0·04 |
| Average at Works | .. | .. | 15·71 | 1·02 | 48·90 | 0·06 |
| Average at East Parade ..... | .. | .. | 14·63 | 1·92 | 48·90 | 0·06 |

During the month the average illuminating power of the Leeds gas, tested at 17, East Parade, the tests being calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure, to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour):—Standard argand, 24-hole, 18·4; standard batswing, 19·5; Sugg's illuminating power meter, 18·4.

## CULTIVATION OF SUGAR-BEET IN SCOTLAND.

ABOUT a fortnight since we gave the results of the competition of the Dalkeith Agricultural Association in raising this crop in the east of Scotland. The results then given were highly satisfactory, but the figures for the crops from the west are still more so.

The premiums, the origin of which was explained in our previous article, have been awarded to Mr. John Gibb, of Bishopton, as the grower of the best crop, and Mr T. Fulton, of Renfrew, was commended. The crops obtained by them in their respective order were as follows:—

| Weight per acre. Roots. Tons. | Shaws. Tons. | Saccharine Yield per cent. | Quantity of Sugar per acre. Tons. | cwt. | qr. | lb. |
|---|---|---|---|---|---|---|
| 17 | 22½ | 14·30 | 2 | 3 | 2 | 14 |
| 12 | 12½ | 13·30 | 1 | 11 | 3 | 19 |

The quality of sugar per acre obtained by the winners was the highest yield out of all the experiments made during the season.

The soil on which the winner's crop was grown was of a deep rich loamy nature, while the second crop mentioned above was grown upon a blackish grey, slightly moorish soil. The seed used in both cases was the same as that employed in the Dalkeith trials.

These experiments have been brought before the notice of the leaders of the Agricultural Conference, which took place recently, and have attracted a good deal of attention both in England and the rest of the United Kingdom, the experiments made in the south of Ireland having been attended with satisfactory results.

Suggestions are being considered for establishing factories in suitable districts, where, through the medium of farmers' associations or otherwise, guarantees from farmers are given to grow and sell to such factories, at a fair price, the produce of not less than 1,500 to 2,000 acres of beetroot per annum over a period of several years, by which means it is anticipated the extended growth of this crop will be fostered and a more general interest on the part of farmers aroused.

## TIPS FOR TRADERS.

A LIST of the charges made by British Consuls for various services at the different ports can be obtained from Messrs. Eyre and Spottiswoode. The list includes about one hundred and ten different fees charged for certificates of origin and such like. The majority of the charges run between five and ten shillings.

THE SPANISH RAILWAY between Algreciras and Madrid having been completed, the former town can now be reached from Madrid in about 23 hours.

GAS LAMPS and chandeliers will find a profitable market in Russia. The attempts to manufacture the same locally at Warsaw having proved unsuccessful.

PAPER, railway materials, and leather, are sent by Germany to Bosnia, while England only sends a few cotton tissues and printed cottons, She obtains eggs, and mineral ores.

GLASS and glassware should find a good market in China. Chinese glass is thin, and very defective, often not being transparent Decanters and wine and beer bottles are sold to the native, at good prices.

TRADERS WITH GREECE, are reminded that German competition is daily becoming more active and more formidable on the Greek market. German travellers are not content with representing a single article, they add to their speciality a large number of secondary articles which may easily be disposed of. In order to compete with them, it is necessary to send trustworthy agents who may take stock themselves of the needs and tastes of the country and of its commercial situation. The Piræus is likely to become an important business centre; it is a market which must not be neglected. It is said that the Greeks are bad customers; this assertion is an exaggerated one; there are, in Greece, as everywhere else, merchants whose only effort is to find dupes; but they are very few and are well known; it is an easy matter to gain knowledge of them before transacting any business. The well-established Greek purchaser always pays, sometimes rather dilatorily when business is bad, still he does pay; it may be mentioned that the year 1891 passed without catastrophe.

TARIFF CHANGES.

There are from time to time many alterations in the customs regulations abroad, which it is as well for those trading in chemicals, paints, oils, and raw materials, to be acquainted with. The following are some of the recent changes of interest to the foregoing:—

GELATIN packed in any form is admitted free of duty into the Netherlands.

TIN in ingots when imported into Spain is charged a duty of 11 pesetas per 100 kilogrammes (peseta=9½d.)

AMMONIUM SULPHATE is subject to a duty of 0·25 peseta per 100 kilos.

INDIGO is dutiable at 15 pesetas per 100 kilos.

CLAY known as "ball clay" as opposed to kaolin, etc., is subject to a duty of 1·50 dollars when imported into the United States.

DEGRAS, a dark brown soap used for dressing leather, is imported free of duty.

ALUMINIUM and Dutch metal leaf is dutiable at 8 cents per 100 leaves.

LIME AND CEMENT, hitherto admitted under the Mexican tariffs free of duty, is now subject to a charge of half a cent per kilo. gross weight.

COTTONSEED oil, unrefined, which includes oil which is of a reddish brown colour, not having been treated for alteration of colour, though it may have been filtered to make it clear, is dutiable at 5 cents per kilo. net weight.

INDIGO has a duty of one dollar per kilo. legal weight levied on it.

GYPSUM AND STUCCO is admitted on payment of a duty of one cent per kilo. gross weight.

POSTAL CHANGES.

The Sample and Parcel Post service with Greece, the suspension of which we notified a short while since, on account of quarantine regulations, has now been resumed.

Money orders for the Argentine Republic and Salvador can now be obtained at every money order office in the United Kingdom.

Telegraph money orders in future will be paid and issued at telegraph offices, so long as they are open for ordinary postal business on week days.

## THE UTILIZATION OF ANTIMONY FOR COMMERCIAL PURPOSES.

BY H. N. WARREN.

AS is well known the mineral sulphide of antimony has been frequently employed in the laboratory as a source for obtaining pure gaseous $SH_2$ by the action of hydrochloric acid upon that substance. By careful observation it will be found that the mineral substance is somewhat more soluble in hot hydrochloric acid than the orange compound; and by taking advantage of this property, the author has supplied a method for the conversion of that substance into the orange compound, adapting the same as a pigment. In arranging for this reaction, hydrochloric acid is so diluted as to allow, when raised to the required temperature, an exact solution of the antimony employed.

*The solution thus formed* should now, upon the addition of $SH_2$ pre*cipitate the whole of the antimony* as the orange sulphide; the acid thus set free being employed for a further use for a fresh addition of mineral.

The apparatus employed consists thus of a convenient sized retort, into which is introduced the required quantity of mineral along with its accompanying solvent, and heat applied so as to maintain a steady evolution of gas. To the retort is connected several suitable receptacles containing a quantity of already prepared solution of antimony chloride, and the issuing gas from the retort allowed to traverse the whole; the orange compound thus precipitated is filtered from its acid solution, washed, and dried, and the filtrate thus formed returned to the converter for continued action upon a further quantity of mineral.

## EXPORTS AND IMPORTS FOR NOVEMBER.

THE Board of Trade returns for this month show a decrease in the imports. In comparing the exports with 1891, it should be remembered that it was in November of last year that the prevailing depression was first apparent.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

| | | Quantities. 1891. | 1892. |
|---|---|---|---|
| Margarine | cwt. | 101,415 | 112,259 |
| Copper ore and regulus | tons | 17,700 | 16,466 |
| Hides—dry and wet | cwt. | 75,817 | 82,945 |
| Nitrate of soda | ,, | 50,906 | 128,499 |
| Tallow and stearine | ,, | 80,022 | 84,428 |
| Tin | ,, | 63,363 | 39,913 |

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

| | | Quantities. 1891. | 1892. |
|---|---|---|---|
| Alkali | cwt. | 547,185 | 543,747 |
| Cement | tons | 34,611 | 39,084 |
| Copper—all kinds | cwt. | 116,213 | 125,624 |
| Coal and coke | tons | 2,381,688 | 2,723,136 |
| Iron and steel | ,, | 221,315 | 230,618 |
| Chemical manures | ,, | 26,291 | 25,150 |
| Oils—seed | ,, | 5,377 | 5,723 |
| Salt | ,, | 37,386 | 65,009 |

## PROFESSOR BRYCE ON MODERN EDUCATION.

PROFESSOR BRYCE, M.P., speaking on our system of modern education at the distribution of prizes at the University College, Liverpool, last week, after reviewing the origin and establishment of universities, went on to show how the primary intentions of these universities had been lost. They were established, he said, to provide oral teaching, but at the present time examinations were the order of the day, from the abuse of which system we were still suffering. One reason why voice and ear were as necessary as ever, and why no amount of books, however good and cheap, no examinations, however frequent and searching, would do what needed to be done, was that we were impressed by a vigorous or sympathetic personality in a manner that a book could rarely impress us. With the large majority of mankind teaching, or persuasion, or exhortation was far more effective when given orally, and especially along with other listeners, than when it came through letters on a printed page.

Again, a skilful teacher could deal with a subject with a discursiveness which was not tedious, but which in a treatise would lead to diffusiveness, a feature which is almost invariably censured in a book.

Bearing these facts in mind, it was evidently essential for a college to have not only men eminent in their respective subjects, but capable as teachers. The art of lecturing was one we had neglected too much in England. France and Germany, perhaps also America, were rather ahead of us. It was a difficult art which needed not only some material gift, but a good deal of thought and care to acquire. The construction of a treatise and of a course of lectures was not necessarily the same, and the manner of treatment ought to be different; the lecture both admitting and requiring a more easy, discursive, and vivacious treatment.

GERMAN CHEMICAL INDUSTRY.—The Mainthal Chemical Company of Griesham-a-Main, made a profit of £2,200. in the last financial year, as compared with £521. in the previous year. During last month the imports of alkali from Great Britain to Germany amounted to 12,769 cwt., as against 8,310 cwt. in November, 1891.

# Official Memoranda.

*(From the Board of Trade Journal.)*

## ITALIAN LIGNITE PRODUCTION.

During late years a good deal has been heard of Italian lignite, attempts having been made to utilise it by means of a process of distillation, as a substitute for coal on a large scale, and also to extract from it illuminating gas.

Investigations which have been carried out have shown that some of the mines are certainly susceptible of a considerable advance in point of production, provided the systems of working them be improved, new local industries established, and the existing ones furthered more than what they are at present; but a serious drawback lies in the fact that Italian mines are utterly inadequate to meet the wants of the country. There seems to be no lack of spirit of enterprise, judging from what has been carried on at San Giovanni di Valdarno, Spoleto, Monterufoli, Murlo, and Montemassi, where, besides laying down important shafts, special and costly tracts of railways have been constructed, running as much as 23 kilometres in length, albeit the fact that the profits are not in proportion to the capital laid out.

It has been calculated that the quantiiy of xiloide lignite embedded in the more important mines throughout the whole kingdom may amount to 75,000,000 tons, yielding at present an annual produce of 331,000 tons, which could be raised to 768,000. To these are to be added the layers of tar lignite, which may contain 8,570,000 tons of combustible, and which at present yield 33,160 tons a year. This latter production could be raised to 185,000 tons. The two qualities of lignite, taken together, would then give a total production of less than 1,000,000 tons, whilst every year Italy consumes coal, which is imported from abroad, to the extent of 4,500,000 tons.

Taking into account the heating power of Italian lignite, which is half of that of English coal, the maximum production given above would represent less than one-eighth part of the actual importation of coal; but if we consider that the present annual importation of coal co-exists with the present production of lignite, the additional maximum production obtainable of 600,000 tons above alluded to would only affect the importation of coal to the extent of one-fifteenth of its present amount.

## THE GAS INDUSTRY.

The usual Parliamentary Returns relating to authorised gas undertakings, belonging (1) to companies for the year 1891, and (2) to local authorities for the year ended March 25th, 1892, have recently been published. The returns include ten new undertakings. The grand totals for the two returns show that 11,219,292 tons of coal have been carbonized, being an increase of 976,865 tons on last year. From this amount of coal 108,694,259,471 cubic feet of gas were made, of which 98,869,805,165 cubic feet were sold. A comparison of the amount of gas obtained from every ton of coal carbonized during the last five years shows a marked diminution of yield per ton both with companies and local authorities.

*Companies' Returns.*—The total amount of share capital paid up on 31st December last was £34,282,164. 10s., of which sum £6,123,334. (including premiums amounting to £1,823,068.), or nearly 18 per cent., had been raised under the provisions of the auction clauses.

One hundred and fifty-eight companies paid a dividend of 10 per cent. on their original capital, and 49 paid dividends varying from 10½ to 32½ per cent., mostly under the operation of the sliding scale. Thirteen companies paid no dividend, four more than last year, and two companies only paid dividends upon their preference capital. Five companies carried on their undertakings at a loss, but the aggregate deficiency in these cases was only £690.

The lowest price charged for gas under the operation of the sliding scale was 1s. 9d. per 1,000 cubic feet, at Plymouth, and the company paid a dividend of 12¼ per cent. on their original capital. The same price was also charged at Hull, but not under the sliding scale.

The highest price charged was 7s. 6d., at Walton-on-Naze, the dividend paid on the combined gas and water undertaking being only 3½ per cent.

The highest dividends paid under the sliding scale were 16½ per cent. by the Harrogate Gas Company, 15½ per cent. by the South Metropolitan Gas Company, and 14 per cent. by the Wandsworth and Putney, Croydon Commercial, and Ashton Gas Companies.

The Kingston-upon-Hull Gas Company paid 20⅛ per cent., and the Pontypridd Gas Light and Coke Company 32½ per cent. (22½ per cent. being in respect of arrears), the Todmorden Gas Company 19 per cent. (9 per cent. for arrears), and the New Mills and Hayfield Gas Company 15 per cent., but none of these companies work under the sliding scale.

The table of dividends paid by the companies upon their original capital shows a further decrease in the average rate from £8. 9s. 4¾d. to £8. 7s. 10¾d. per cent.

*Local Authorities' Return.*—The lowest prices charged per 1,000 cubic feet of gas were 2s. 3d., less 3d. as share of profits and discount 1d., by the Bury Corporation; and 2s. 1d. and 2s. 3d., discount 3d., by the Widnes Local Board. The highest prices were 7s. 6d. per 1,000 cubic feet by the Kilrush Town Commissioners, and 9s. by the Tain Gas Commissioners. Both of these undertakings appear in the return for the first time this year.

In 14 instances the expenditure exceeded the receipts, as compared with nine instances last year. The number of instances in which the excess of receipts over expenditure was insufficient to provide for the payment of interest, etc., was 48, as compared with 43 instances last year and 36 in the previous year.

The following local authorities made a profit of over £10,000. after payment of interest, etc. :—

| Town or City. | Net Profit. | Price charged to Private Consumers. | How Profit was applied. |
|---|---|---|---|
| | £ | | |
| Manchester . | 74,278 | 2s. 6d. | £55,596. to relief of rates; £9,085. written off assets; £9,597. to contingent fund. |
| Edinburgh . | 27,078 | 4s. 6d., discount 2½ to 10 %. | Annuities sinking found, £14,535.; borrowed money sinking fund, £1,197.; new works, £7,050.; carried forward, £4,296. |
| Bolton . . . | 25,224 | 3s. 2d., discount 6d. | £8,873. placed to reserve fund £16,351. in aid of rates. |
| Nottingham . | 25,222 | 2s. 4d. to 2s. 6d. | Not yet applied. |
| Belfast . . . | 22,930 | 2s. 9d., discount 2½ to 20 %. | To capital account, etc. |
| Birmingham . | 22,144 | 2s. 3d. to 2s. 7d., discount 5 %. | To City improvement rate. |
| Leicester . . | 21,191 | 2s. 4d. | £19,191. to general district rate; £2,000. to renewal fund. |
| Salford . . | 13,824 | 2s. 3d. and 2s. 4d. | £10,000. to depreciation funds; £3,824. to relief of rates. |

## LEAD WORKING INDUSTRY IN NEW SOUTH WALES.

An interesting addition to the industries of the colonies has recently been made in the shape of a factory for working up lead into the various forms in which this material is employed in building, plumbing, and other work. The factory is situated close to the Government Wharf at Blackwattle Bay. The inauguration of the industry is due to the enterprise of G. E. Crane and Sons, of Pitt Street, Circular Quay, in conjunction with Mr. John M'Ilwraith, of Melbourne. Additional interest is lent to this venture by the fact that the material used is of New South Wales production. Hitherto the enormous output of lead from the silver mines has all been forwarded to Great Britain, and the requirements for building and other purposes there manufactured and then shipped back to us; but by the erection of the works here this state of things is entirely altered, and we can now supply all and more than our own wants with material of the purest character and in perfect order. This has hitherto been impossible, owing to damage received during transhipment of the imported article. The premises, which consist mainly of a large and substantial two-storey brick building, with chimney shaft 120 ft. high, have a frontage of about 160 ft. to Wentworth Park, close to the Government Wharf, Blackwattle Bay, and thus offer every facility for the conduct of the business for which they were specially erected.

## PETROLEUM INDUSTRY AT BAKU.

According to the *Deutscher Handels Archiv* this industry is undergoing a severe crisis owing to over production, several producers having stopped payment or made arrangements with their creditors.

The yield of oil from both old and new naphtha fields has been exceptionally plentiful, notwithstanding the prognostications as to their exhaustion. Quantities of crude naphtha are going to waste owing to the overflowing of the collecting reservoir. Some springs are yielding as much as half a million pouds per day (poud = 36 lbs. avoirdupois), and as soon as one becomes exhausted fresh ones are discovered. At Bibi-Abad superfluous naphtha is allowed to flow into the sea.

Twelve months ago a poud of crude naphtha was worth from 8 to 10 copecks (from 5d. to 5½d. per cwt.). The price is now fluctuating between 4 copecks and 1 copeck the poud, and naphtha is said to be even given away.

Apart from the more careful process of refining to which it is subjected, American petroleum (according to the report) is somewhat superior to Russian as regards quality, consequently Americans have been able to keep their prices somewhat in excess of those for Russian oil.

The Baku naphtha industry possesses an advantage over that of North America in consequence of the large proportion of valuable residues contained in Russian oils. Even now the Russian markets

can absorb more than 1,600,000 tons of residues, the use of which as fuel is becoming more extended in industrial establishments from day to day. So profitable a commodity are the residues that refined petroleum may be treated as a side product and sold at low prices for lighting purposes.

The average price at Baku of a poud of pure petroleum is 28 copecks. Russian naphtha yields about 33 per cent. of petroleum. Supposing the price of one poud of naphtha to be 2½ copecks, the cost of manufacturing one poud of petroleum would be as follows:—

| | Copecks. |
|---|---|
| 3 pouds naphtha at 2½ copecks .. .. | 7·5 |
| Cost of refining, acids, soda, chemicals .. | 3·0 |
| | 10·5 |
| Residue of 1½ pouds, now worth about 3 copecks the poud, value to be deducted .. .. | 4·5 |
| Cost of production of 1 poud of petroleum .. | 6·0 |

When the price of residues is higher (they sometimes exceed 6 copecks the poud), the cost of production of pure petroleum is still smaller.

America, however, possesses the great advantage of cheap sea freights, whereas the cost of transporting one poud of petroleum from Baku to Batoum is 19 copecks, apart from charges for frequent reloading and finally sea freight. Meanwhile the proposal for laying down pipes between Baku and Batoum for conveying crude naphtha hardly seems likely to be carried out, although there can be no doubt as to its technical feasibility. Besides the project of pumping naphtha to Batoum is opposed by the powerful interests of Baku refiners.

## MINERAL WATERS IN BOSNIA.

The French Consul at Bosnia-Serai, in a recent report states that there are in Bosnia numerous thermal baths and springs of mineral waters.

Among the first are those of Banjaluka and Ilidzé.

The latter station is about a dozen kilometres distant from Serajevo, and constitutes in summer the favourite rendezvous of the urban population; it possesses a sulphurous water of a temperature of about 31 degrees, althought often insufficient in quantity, and is beneficial in skin diseases and chronic rehumatic affections.

The Imperial administration has built there, at large expense, spacious hotels, a casino gardens, &c., its object being to make of it a kind of sanitarium for the inhabitants of Dalmatia, and the occupied territory.

The springs of mineral waters which are used for exportation are Kisseljak and Guber. Others, such as those of Trbuk and Dragunja are only worked in view of local consumption.

The establishment of Kisseljak is situated about 35 kilometres distant from Serajevo; it receives from 600 to 700 patients yearly. The water is alkaline and contains principally acidulated iron, bicarbonates of lime, of magnesia, with a proportion of 18 per cent. of carbonic acid. A very large number of bottles are used in Bosnia, about 30,000; on the other hand, only an insignificant number are exported, 500 bottles in 1890 and 800 in 1891.

The Guber water is of recent invention; the Mattoni firm has received the concession for it. The water is ferruginous and arsenical; the new spring has begun to rapidly create a name for itself and to secure a good market. It is keeping up a keen competition with the rival springs of Levico and Roncegnio; the doctors of the monarchy prescribe it for anæmia, chlorosis, scrofula, skin diseases, etc. The bottles, which hold one-fourth litre each, were exported in 1890 to the number of 100,000, and in 1891 to the number of 118,000.

## SALT PRODUCTION AND REVENUE IN BRITISH INDIA.

According to an official return recently received at the Board of Trade from the India Office, the total quantity of salt produced in India in 1891 was a little over 26½ millions of maunds, compared with 28½ millions in the preceding year. The production in Northern India, especially at the Sambhar Lake, was on a very reduced scale owing to seasonal causes. This quantity was supplemented by 10,266,098 maunds of imported salt, the total quantity produced and imported amounting to 36 950,473 maunds, about 71 per cent. of the whole being produced in India. Importation is practically limited to salt brought to Bengal and Burmah from England, Germany, other countries in Europe, Aden, Muscat, Jeddah, and a few other places, and there is also a trifling Trans-Himalayan import. The localities where salt is manufactured are these:—Northern India: Sambhar, 2,162,130 maunds; Punjab mines and Kohát, 2,839 049 maunds; Rajputana sources other than Sambhar, 653,145 maunds; Mandi, Sultanpur, Gwaloir, and the saltpetre refineries, 359,059 maunds. Total, 6,013,383 maunds. Bombay: Coast and Runn of Kutch, 10,352,420 maunds; Sind, Moach near Karachi, 292,627 maunds; Madras, east coast, 9,718,902 maunds; Bengal, Orissa chiefly, 8,985 maunds; Burmah, coast, and some brine wells in Upper Burmah 298,058 maunds.

In 1891-92, 34,451,248 maunds of salt paid duty, the duty realised amounting (exclusive of miscellaneous receipts) to Rx. 8,245,020, the quantity being 3·48 per cent. and the duty 3·27 per cent. more than in the previous year.

# Legal Intelligence.

## SUPREME COURT OF JUDICATURE.

### COURT OF APPEAL.

(*Before Lord Justice Lindley, Lord Justice Bowen, and Lord Justice A. L. Smith.*)

THE MAXIM-NORDENFELT GUNS AND AMMUNITION COMPANY (LIMITED) *v.* NORDENFELT.

This case was an appeal by the plaintiffs against the decision of Mr. Justice Romer (*C.T.J.* 274, p. 113) The defendant, Mr. Thorsten Nordenfelt, had, according to the plaintiffs' case, broken the contract he made with the plaintiff company, who sought for an injunction restraining him from continuing to do so. In March, 1886, a company called the Nordenfelt Guns and Ammunition Company (Limited) was incorporated, with a capital of £300,000. its principal object being to acquire and take over the assets and liabilities of the defendant's business. The defendant sold his business as a manufacturer of quick firing guns and ammunition to the company for £287,500 This company was afterwards amalgamated with the Maxim Gun Company (Limited), and a new company (the plaintiff company) was the result of the union. The plaintiff company was incorporated in July, 1888, with a capital of £1,400,000. and by an agreement between the new company and the defendant, dated September 12, 1888, the defendant agreed (amongst other things) as follows:—"The said Thorsten Nordenfelt shall not during the term of 25 years from the date of the incorporation of the company, if the company shall so long continue to carry on business, engage, except on behalf of the company, either directly or indirectly, in the trade or business of a manufacturer of guns, gun mountings, or carriages, gunpowder, explosives, or ammunition, or in any business competing or liable to compete in any way with that for the time being carried on by the company; provided that such restriction shall not apply to explosives other than gunpowder, or to subaqueous or submarine boats or torpedoes, or castings or forgings of steel or iron, or alloys of iron or of copper; provided also that the said Thorsten Nordenfelt shall not be released from this restriction by the company ceasing to carry on business merely for the purpose of reconstitution or with a view to the transfer of the business thereof to another company, so long as such other company taking a transfer thereof shall carry on the same.

"The said Thorsten Nordenfelt also covenants and agrees with the company that so long as the company, or any successor to or assignee of the business of the company, shall continue to carry on the business of the company, the company, or such successor or assignee, shall be entitled to the full and exclusive benefit of all new inventions or improvements now made or discovered, or that may hereafter be made or discovered by him in connection with guns, gun mountings, or carriages, gunpowder, explosives, or ammunition, and with that object he will with all convenient speed communicate to the company particulars of any such new invention or improvement made or discovered by him, and will give to the company full information and details thereof, with all models, plans, drawings, and designs as to the exact mode of working and using the same, and from time to time, at the expense in all things of the company, will execute and do all such documents and things as may be requisite for the purpose of enabling the company to obtain in its name, or in the name of any nominee, any British, colonial, or foreign patent for such inventions and improvements, and will from time to time and at all times give such advice, explanations, and instructions to the company and its *employés* as may be necessary to enable them effectually to exercise and work such inventions and improvements."

Lord Justice Lindley read a lengthy judgment in which he argued that the judgment of Mr. Justice Romer ought to be reversed, as the contract was valid, and he was of the opinion that the plaintiffs were entitled to the additional relief they claimed, viz, an order on the defendant to transfer to the plaintiff company certain patents alleged to have been taken out by him since January, 1890, when he resigned the post of manager to the company, for inventions in guns, ammunition, etc.

Lord Justice Bowen also read a long written judgment quoting a number of cases, from which he finally deduced the following. In his opinion, he said, the rule as to general restraint of trade ought not to apply where a trader or manufacturer finds it necessary, for the advantage-

ous transfer of the goodwill of a business in which he is so interested, and for the adequate protection of those who buy it, to covenant that he will retire altogether from the trade which is being disposed of, provided always that the covenant is one the tendency of which is not injurious to the public. This last element in the definition ought not. I think, to be overlooked, for I can conceive cases in which the absolute restraint might as between the parties be reasonable, but yet might tend directly to injure the public, and a rule founded on public policy does not admit of any exception that would really produce public mischief; such might be possibly the case if it was calculated to create a pernicious monopoly in articles for English use, a point I desire to leave open, and one which, having regard to the growth of syndicates and trusts, may some day or other become extremely important. As good faith demands that Mr. Nordenfelt should be bound by his solemn agreement and as the public can in no way be injured by his being held to it, I think the injunction as defined by my brother Lindley should be granted, and the order made in the form he has suggested. Lord Justice Smith concurred. The defendant gave notice of appeal to the House of Lords.

# Reports of Companies.

## THE BRITISH WATER GAS SYNDICATE, LTD.

The annual meeting of the British Water Gas Syndicate (Limited) was held last week at Leeds. Mr. Samson Fox presided, and said that he had found much misunderstanding as to the views held by the sub-companies with respect to the parent company. The parent company was originally formed for the purpose of giving licences to other companies, and formed three such companies. The parent company undertook to carry out all the work the other companies could get. It was no news to his hearers that the Yorkshire and the North British had not paid the parent company what it was agreed to pay. They had still due from the North British £49,300. on account of the licence, and there was £15,000. due from the Yorkshire. Matters had gone so slowly with the sub-companies that they could hardly be expected to pay the money. The Yorkshire Company could call up £37,000. and the North British could call up £80,000. Their own company, if they were to make a call—but it was intended to avoid that—would be able to call up £46,000. If combined under one management, considerably less capital would be required to work the three companies, and, after paying all the debts of the three companies and after recovering the amount it was proposed to call up—namely, 10s. a share on the sub-companies—and after recovering the amount which the North British had in their bank, they would then have relieved the shareholders of the three companies of a liability of £133,000.—£60,000. in the North British, £27,000. in the Yorkshire, and £46,000. in the parent company. He proceeded to point out why the endeavour to establish water gas should be persevered in, and especially asserted its unequalled suitability for steel smelting. This provoked from a shareholder the taunt "It's a gold melter," and another shareholder remarked "It has melted a good lot of mine." The chairman continued to address the meeting amid interruptions, and concluded by moving the adoption of the report. Mr. Brook moved, and Mr. Bullock seconded, that the meeting decline to adopt the report and balance-sheet, and that a committee of investigation be formed. The amendment was lost, and the original motion adopted.

## THE CASSEL GOLD EXTRACTING CO.

The annual meeting of the shareholders of the Cassel Gold Extracting Company was held in Glasgow last week. The chairman, in moving the adoption of the report, said the gross amount at the credit of profit and loss account was £24,586., and from that sum £7,275. was written off for depreciation of patents, leaving a net balance of £17,311. 4s 10d. From this it was proposed to pay a dividend of 5 per cent., being 15 per cent. for the year. That would absorb £10,625.; £2,500. was to be placed to the reserve fund, bringing that up to £22,500. leaving a balance of £4,186. 4s. 10d. to be carried forward to next year. The flourishing condition of the African Gold Recovery Company was matter for congratulation. The recent contracts which this company had entered into would amount to about 80,000 tons monthly, which when in full operation would mean, including what was previously being treated, about 120,000. tons per month. They had also entered into contracts for the treatment of specific blocks of tailings amounting to about 180,000 tons, which were not included in the above figures. The leading companies were one after another adopting this process, and, looking to the steady yearly extension of gold mining in South Africa and the corresponding yearly increase in the amount of tailings, the prospects of the African Company were as satisfactory as could be desired.

## THE LANCASHIRE AND YORKSHIRE WATER GAS CO.

The general meeting of the Yorkshire and Lancashire Water Gas Company was held last Thursday week at the Great Northern Railway Hotel, Leeds, Mr. Joseph Mitchell, of Bolton Hall, chairman of the company, presiding. There was a large attendance. The report of the directors regretted that the progress and application of water gas had not been what was hoped for, but, despite its present discouraging aspect, they were still sanguine, there was an enormous field for water gas operations in this country. The account showed a loss on the year of about £800. The Chairman having moved and Mr. J. G. Bellamy seconded the adoption of the report, Mr. Leah (a shareholder) drew attention to the shares bought in the Syndicate, and asked if any steps had been taken by the directors, who had, he declared, speculated with this money, to refund. On this question a stormy discussion took place, in the course of which the chairman observed that as the matter was at present in liquidation he was not in a position to say anything either one way or the other. Mr. Leah: It's nonsense. Mr. Orford: That's an evasive reply, and it's time an explanation was given. The Chairman said that if any shareholder wanted more information he ought to put the matter into the hands of his solicitor to inquire into. Mr. Orford: Shareholders are entitled to an explanation You are evading the answer, as usual at these meetings (Disorder.) The Chairman: If you don't apologise——Mr. Orford apologise for what? I am an original shareholder. I don't speculate in the shares, and I am entitled to an explanation. (Cries of "So are we.") I want to know what right the directors have to gamble with the shareholders' money. (Renewed confusion) The Chairman declared he had nothing to hide, but in view of the liquidation he did not intend to say anything. An amendment rejecting the report and accounts was then put, 16 voted for it and 13 against it, amidst great cheering The Chairman, however, pointed out that he held a large number of proxies, representing thousands of pounds. Use being made of these, the original resolution was carried On the motion of Mr. Samson Fox, Mr Mitchell was re-elected a Director of the Company Auditors being appointed, a shareholder exclained, "What do we want with auditors? There's nothing to reckon up." Several shareholders wished to continue the meeting, but the Chairman declared it at an end.

# Selected Correspondence.

## THE POLLUTION OF THE RIVER IRWELL.

*To the Editor of the Manchester Guardian.*

Sir,—From your correspondence columns it may be gathered that Alderman Walmsley, chairman of the Salford River Conservancy Committee and member of the Joint Committee of Lancashire and Cheshire for the Prevention of Rivers Pollution, is disposed to pay no regard to your anonymous correspondents, and that he abhors ancient history. In his pamphlet on the pollution of the Irwell, published in 1887 by the Salford Corporation, we read that at the September meeting of the Salford Council in 1869 Mr. Walmsley moved the following resolution:—"That the Secretary of State for the Home Department be requested to appoint an inspector to examine the river Irwell and to report upon the best method of preventing the flooding of lands and buildings in the borough of Salford and the city of Manchester respectively, and to furnish an estimate of the probable cost of such works as may be necessary to accomplish that object, and to suggest what local authorities should carry out such works, and in what proportion the cost thereof should be borne by such authorities and by the owners of property benefited thereby respectively." The resolution was not passed, but an amendment was carried that the subject be referred to the General Purposes Committee. Since 1869 new sewers and sewage works costing a quarter of a million have been constructed by the Salford Corporation, and the annual cost to the borough of dealing with the sewage, including interest, is said to be £10,460. The ratepayers of Salford would like to know from Alderman Walmsley what proportion of this yearly tax is borne by the owners of property benefited by this great improvement. For a considerable period the Mode Wheel works have been the scene of elaborate and costly experiments as to the most effectual means of dealing with sewage, and it was intimated some time ago that a full report thereon would shortly be published. This report has, I know, been anxiously looked for by many authorities, who are delaying their own schemes until they hear from Salford which is the best method of dealing with this difficult sewage problem. The boroughs of Darwen, Wigan, and Accrington, which have received two months' notice from the Ribble Joint Committee this week, will only be too happy to profit by the experience gained by the Salford Corporation, which, according to Alderman Walmsley in 1887, was "the only authority on the banks of the river which can with clean hands compel its offending neighbours to amend their ways."—Yours, &c.,

Bury, December 15, 1892. A. F. Bentley.

# Correspondence.

**** We do not hold ourselves responsible for the opinions expressed by our correspondents.*

## ANSWERS TO CORRESPONDENTS.

A.A.—We think the celebrities mentioned in your communication can blow their own trumpets quite long and loudly enough, without our assisting to swell the blast.

Y.K. (Japan)—Thanks for letter. We have written you further, and hope you will see your way to meet our proposal.

C.E.P. (Canada).—We have sent them on as requested.

F. Bros.—This week.

H.B.—The matter is being investigated; we will let you know result later on.

S.H.C.—It is often used, but it is not advisable to use it. It is being classed under the heading of adulterants

# Trade Notes.

Fire at a Hamburg Chemical Works.—About 9 a.m. on Wednesday last, a fire broke out at the works of Messrs. Beit and Phillippe, situated in the Uhlenhorst quarter of Hamburg. The firm are manufacturers of saltpetre. Owing to the nature of their stock, the central block of the works was soon completely gutted.

Dehne's Filter Presses.—We learn that the separate agencies of England, Scotland, and Ireland, for Dehne's Filter Presses and other specialities, have been combined, and the former English representatives, the firm of C. Harzer, Billiter Buildings, Billiter-street, London, E.C., have been appointed sole representatives for the United Kingdom.

Cholera Precautions for 1893.—With a view to obtaining uniformity of action in dealing with the important question of the prevention of cholera during the coming year, the Medical Officer of Health for the Port of London has convened a conference in London of port medical officers for the 17th inst. A result of this conference will be that the medical officers will be united in their demands on the Local Government Board for further powers, which at present are insufficient.

Messrs. Fuerst Bros.—In order to facilitate the use of the new photographic developer which this firm introduced a short time back, under the name of Amidol, they are now supplying the same in cartridges. It is essential that pure sulphite be used with this developer, and, to ensure this, they have started these cartridges, which contain enough pure sulphite and amidol to develop 10 half-size plates The cartridges are packed in boxes of six, and are retailed at half-a-crown a box.

The London Chamber of Arbitration.—The first case in the newly-constituted London Chamber of Arbitration was heard in the Arbitration Court at the Guildhall last week. Sir Albert Rollitt, M.P., sat as sole arbitrator, and there were also present Mr. Henry Clarke, chairman of the Arbitration Committee, Mr. Roderick, registrar, the deputy-registrar, and the parties interested. The hearing lasted about two hours and was concluded. The question involved was one of principal and agent, and as to the rightful or wrongful termination of the agency.

**Obituary.**—We regret to record the death of Mr. Alfred Fryer, at Wilmslow, on Tuesday last week. The deceased was 63 years of age, and was a member of the Manchester firm of sugar refiners, Messrs. Fryer, Benson, and Foster, as well as of the well-known engineering firm of Messrs. Manlove, Alliott, and Fryer, from which concern the deceased retired about two years ago. He always took a deep interest in scientific subjects, and devoted considerable attention to the study of astronomy. In 1870 he was invited to join in the Solar Eclipse Expedition to Sicily. He went, and with Mr. Alfred Brothers, F.R.A.S., succeeded in taking a photograph of the corona and its protuberances, a photograph which is justly famous and copied in various astronomical works.

Bottle Makers and Merchandise Marks.—A meeting of masters and workmen's representatives of the Flint Glass and Bottle Trades' Association was held at the Victoria Hotel, Manchester, on Saturday last, to consider the amendment of the Merchandise Marks Act of 1887 and 1891. Representatives were present from all parts of the country. Mr. Burtles presided. Mr. J. J. Rudge, the secretary, read replies from members of Parliament approached as to their opinion on the subject. They all expressed themselves in favour of an amendment of the Act, and promised the movement their support. In order to bring about a general action amongst all the trades interested, the following resolution was passed:—"That a circular letter be issued to the various Chambers of Commerce, Trades Councils, and associations of employers and workmen in all the industrial centres soliciting their co-operation and support in the movement to obtain an amendment of the Merchandise Marks Acts in accordance with the proposed Bill which Colonel Howard Vincent has promised to introduce as early as possible in the next session of Parliament." The meeting decided to meet at an early date for the purpose of drawing up a complete case to lay before the Board of Trade, and to select a deputation for that purpose.

# Market Reports.

## TAR AND AMMONIA PRODUCTS.

There is nothing fresh or startling to report in the tar products market without it be the difficulty of making sales at remunerative prices, and this is true of the whole range of liquid products.

The sulphate of ammonia market is reported quiet, but this cannot be owing to any falling-off in the demand, as the sulphate shipments for the year show over 20,000 tons increase, and the Westphalian producers have sold forward till at least June, and in some instances to the end of the year at prices equal to £10 10s. to £10. 15s. There will probably not be much change now till the turn of the year.

## REPORT ON MANURE MATERIAL.

The market continues very quiet in all positions, and with the exception of dried blood, for which there has sprung up an export demand, prices continue without improvement.

The quotation for 75/80% Florida phosphate rock is 8d. per unit in cargoes, c.i.f. to U.K., but buyers will not give the price, and 7¾d. is probably the nearest value. There are again sellers of hot-air dried South Caroline River rock at 6¼d. per unit, in cargoes for shipment. The value of Peace River rock is about 6½d. to 6¾d. per unit. River Plate bone ash is difficult to sell, and £2. 17s. 6d. per ton on 70% per ton nett, Hamburg terms, is the full value.

There is less doing in River Plate cargoes of bones, and £4. 2s. 6d. would hardly now be obtainable. Crushed Kurrachee bones offer at £4. per ton, ex quay Liverpool or Hull, and something less would no doubt be accepted if bid. On spot there are sellers of Bombay bone meal at £4 ex quay, and for shipment at £4. 8s. 6d. Charring bones are in good demand at Liverpool, and £4. 7s. 6d. to £4. 8s. 9d. paid during the week.

Nitrate of soda remains quiet in all positions, but very steady. On spot 8s. 10½d. per cwt. is lowest for inferior test, and 9s. to 9s. 1½d. for good to refined quality. Due cargoes are worth barely 9s. for ordinary test. September shipments may be quoted 9s. 1d. to 9s. 2¼d., and October-November 9s. 3d. to 9s. 4½d. per cwt., according to size and test.

There has been more doing in fine home prepared dried blood of high test for export at advanced prices, but the quotation for ordinary makes, free to rails, remains without alteration.

## MISCELLANEOUS CHEMICAL MARKET.

There is a moderate amount of business doing in all products of the alkali trade, but the principal activity is exhibited in regard to business for 1893 delivery, and, generally, the tendency is in the direction of lower prices for the staple products. In soda ash the contest still wages brisk between the several makers of ammonia alkali, 58%, prices as indicated in our former report. Caustic soda is flat for early requirements, but prices are nominally without change at quotations noted last week, viz.:—F.o.b. Tyne, 77%, £11. 15s.; f.o.b. Liverpool, 74%, £11. 2s. 6d.; 70%, £10. 2s. 6d.; 60%, £9.; cream, 60%, £8 15s, 10 ton lots and upwards. Bleaching powder is firm in price, and demand both for early and forward delivery is good. Salt cake is in excess of requirements, and price lower in various districts of manufacture. Chlorate of potash without change in quotation for forward delivery and still scarce for prompt. Recovered sulphur remains quiet at £4. 12s. 6d. f.o.r. For sulphate of copper the price is still £16. Brown and grey acetates of lime are in only small demand, and there is no movement in price; other acetates remain steady in value. Potash caustic and carbonate continue in fair request and prices are maintained. White powdered arsenic is a firm market, and £12. 10s nett. at Garston is lowest price for the best brands. Zinc Chloride is offering at lower rates owing to curtailment of demand. Miscellaneous chemicals for the textile trades are generally quiet.

## LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS, WEDNESDAY.—The quietness of palm oil has increased and business is now very dull and prices tending downwards; Lagos having been done at £24. per ton transit. Olive remains in *statu quo ante*, and prices are unaltered. In linseed there has been a better demand at 19s. 3d. to 19s. 6d. per cwt. in export casks. Cottonseed is still firm in both market and price, 19s. 3d. being to-day's quotation. Castor oil is steady at last week's currencies, namely, good second Calcutta 2 5/16d., and first pressure French 2 11/16d. per lb. There is a fair enquiry for tallow at 25s. 6d, to 26s 9d. for North American, the supplies are small. Resin, common, has fluctuated between 4s. and 3s. 10½d. during the week, and is to-day rather quiet. Other grades firm. Spirits of turpentine are worth 22s. 9d. to 23s. per cwt. on the spot, an advance on the price ruling in the early part of the week. Petroleum is in good demand: Jessamine, 5d. to 5⅛d.; White light, 4½d. to 4 7/16d.; Snowflake, 6⅛d.; Russian refined 4½d. to 4⅝d. per gallon.

COLOURS.—No change to report. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s., medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £22. to £23.

## THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron quiet. Scotch warrants closed at 41s. 7d. cash. Middlesbrough 37s. 6d. cash, and Hematite 45s. 10d. cash. Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s closed at £46. 15s. cash, and £47. 5s. to £47. 11s. 3d., three months. Tin dull. Straits closed at £91. 7s. 6d. cash, and £90. 10s. to £91. 2s. 6d. three months. Australian, £92 2s. 6d. cash. English ingots, £95. Lead firm: Spanish, £9. 17s. 6d. to £9. 18s. 9d. English, £10. to £10. 2s. 6d. Silesian spelter: Ordinary, £18. 7s. 6d. Quicksilver: First hands, £6. 2s. 6d., second hands, £6. 2s. 3d. *Copper shares* steady; Cape, 1⅝ to 1¾. Copiapo, 2 5/16 to 2 7/16. Libiola, 3⅛ to 3⅜; Mason and Barry, 3 to 3⅛; Rio Tinto, 16 3/16 to 16 5/16; Tharsis, 4 11/16 to 4 13/16; Namaqua, ¾ to ⅞; Panulcillo ¼ to ⅜.

WOLVERHAMPTON, WEDNESDAY. — The improvement in Glasgow and Middlesborough markets strengthened prices to-day. Market also strengthened by Lincolnshire strike, which has stopped all Lincolnshire pig supplies. Derbyshire, Northampton, Nottingham, and other Midland pigs all firmer for forward business. Staffordshire pigs 60s., all mines 45s. to 47s. for forge and foundry part mines, and 36s. for cinder. Cumberland hematites 58s. to 59s. delivered here finished. Ironworks are preparing for the holidays. Prices weaker. Common bars, £5. 10s.; best, £8.; sheets, doubles, £7. 5s.; hoops, £6. 10s. Coal demand disappointing. Prices easier.

GLASGOW, WEDNESDAY.—Market quiet, with small business. Scotch done at 41s. 7½d. and 41s. 7d. cash, also at 41s. 9d. one month; closing with buyers at 41s. 6½d. cash, and 41s. 8½d. one month; sellers ask ½d. more. Middlesbrough closes with buyers at 37s. 6d. cash; sellers ask 37s. 9½d. Hematite closes with buyers at 45s. 10d. cash; sellers ask 46s.

## THE LIVERPOOL MINERAL MARKET.

The market has ruled firm. Manganese prices still advancing, consequent upon increased demand. Borate 7d. per lb.; sulphate, £21. 10s.; oxalate, 1s. 6d. per lb.; chloride, £15.; carbonate, £12. 10s., steady. Magnesite (raw lump) increasing demand; raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand) very brisk, especially for export foreign, and prices are firm; lump 20s., seconds 16s., thirds 12s. French chalk: Arrivals small, whilst demand is brisk, and prices are firm. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump, scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland easy. Santander and manganiferous quiet. Emerystone: Good demand, and prices are firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth continues quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal continue to be much sought after, and prices are firm. Chrome ore is in good demand for best qualities, and prices firm. Antimony ore steady at £12., and metal £43. to £44. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in better demand. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

## TYNE CHEMICAL REPORT.

TUESDAY.

For chemicals, bleaching powder is firm at £7. 15s. per ton, with good demand. Other products are quiet. Caustic soda and soda crystals, to a large extent, have their prices determined by the port of shipment. Sulphur, £4. 15s. per ton.

Bleaching powder, softs, £7. 15s. per ton nett; hards, £8. per ton; caustic soda, 76/77%, £11. 5s. per ton, 70%, £10. 5s. per ton; recovered sulphur, 2 cwt. bags, £4. 15s. per ton; soda ash, 48%, £5. 8s. 9d. per ton, 52%, £5. 17s. 9d. per ton, 56%, £6. 6s. 9d. per ton; alkali, 36%, £4. 18s. 6d. per ton; white alkali, 48%, £6. 10s. per ton, 50%, £6. 15s. 6d. per ton, 52% £7. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £4. per ton, 140° Tw., £4. 7s. 6d. per ton; soda crystals, in casks, £2. 15s. per ton gross weight, in 2 cwt. bags, £2. 15s. per ton nett weight; chlorate of potash, 9d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, £4. 15s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 15s. per ton; carbonate of alumina, £28. 15s. per ton; aluminate of soda, £33. 15s per ton; hydrate of barium, £10. per ton.

South Durham salt steady at 10s. 1d. per ton f.o.b Tees.

The coal trade is steady. Best Northumbrian steam, 9s. per ton f.o.b.; small steam, 3s. 9d. per ton f.o.b. There is a large demand for gas coals, the consumption being very heavy this month. Bunker and manufacturing coals dull, the demand for the latter being considerably restricted, owing to the holidays. Coke steady at about 15s. per ton f.o.b.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The condition of sulphate of ammonia is less anomalous than it was a week ago, but still presents contradictions which dealers cannot fully explain. Undoubtedly it is weaker, but how much cannot precisely be said. It is not known to have been done at less than £10., but on the other hand if ruled by the views put forth in the advices of continental buyers, it would not fetch so much as the figure named.

If there is any change to record in the mineral oil section, it must be still further to the gloomy side. The price of scale in the undernoted list of quotations is left as it was, but it is reported that some holders have been parting for less, and there are still complaints of the unwieldiness of stocks. The Clippens Company, the oldest in the industry but one, and quite recently recounted healthy, has decided to wind up.

Chemicals generally are unchanged and quiet, with the exception of bleaching powder, which has been raised to £7. 15s. at which it is very firm. There is still an absence of business in soda ash and refined alkalies, purchasers holding off for the lower prices in January. It is reported to-day, that the United Alkali Company will, at the end of this month, stop their make of caustic soda for an indefinite period, on account of great growth of stocks.

Chief prices current are:—Soda crystals, £2. 15s. nett Tyne; alum in lump, £5. 10s., nett Glasgow; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; bleaching powder, £7. 15s. nett Tyne; saltcake, 32s. 6d.; borax, English refined, £30., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8½d., less

5% any port; nitrate of soda, 9s. 1½d.; sulphate of ammonia, £10. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16. 10s. less 5% Liverpool; paraffin scale (hard), 1¾d., and soft 1¾d. per lb; paraffin wax, 120°, semi-refined, 2¼d.; paraffin spirit (naphtha), 6d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower); ditto (lubricating), 865°, £3. 5s. to £3. 10s., 885°, £4. 5s. to £5. 15s., and 890/895°, £5 to £6. 10s. Week's imports of raw sugar at Greenock were 6,840 bags.

# New Companies.

**Neptune Soap Syndicate, Limited.**—Capital £5,000. in shares of £5. each. The object of this company is to prepare ingredients for and manufacture soap, and to purchase and deal with any patents connected with soap making.

**T. B. Harrison and Co., Limited.**—Capital £4,400. in £1. shares. This company has been formed with a view to taking over the trade of Mr. S. H. F. Hole, and to trade as glue, size and oil merchants.

**J. McCall and Co., Limited.**—Capital £5,000. in £10. shares. The object of this company is to purchase and sell minerals used, and waste products obtained in the manufacture of coal gas such as gas water, spent lime, and oxides, and all residuals, gas cannel, and bituminous coals.

**Wearmouth Fire Brick Co., Limited.**—Capital £3,000. in £5. shares. The object of this company is to carry on the business of manufacturers of fire bricks, fancy bricks, and other similar articles composed of clay, ganister, and silica, and to trade as merchants in such similar articles.

**French and American White Lead Syndicate, Limited.**—Capital £50,000. in £1. shares. This company has been formed with a view to purchasing patents in connection with the manufacture of white lead and sulphate of lead, and to trade as dealers and manufacturers of the aforesaid and other chemicals. The subscribers to the memorandum of association are:—H. E. Tookey, Greenwich, Kent, clerk; W. Taylor, Plumstead, clerk; E. Osborne, Dalston, N.E., clerk; J. H. Fairchild, West Ham, clerk; J. A. Wilkie, Barnsbury, N.E., clerk; A. Glencross, Walthamstow, clerk; C. Adams, Stratford, clerk.

**South Wales Portland Cement and Lime Co., Limited.**—Capital £75,000. in £5. shares. This company has been formed with a view to trading as cement manufacturers, lime burners, brick makers, etc. The subscribers to the memorandum of association are:—A. H. Brown, Tunbridge Wells, cement manufacturer; A. Brown, Tunbridge Wells, cement manufacturer; E. A. Brown, Tunbridge Wells, married woman; L. Whitby, Tunbridge Wells, married woman; W. L. Morcorn, Cardiff, cement manufacturer; C. M. Morcorn, Cardiff, married woman; W. J. Cooper, Penarth, Cardiff, cement manufacturer.

# The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

### APPLICATIONS FOR LETTERS PATENT.

**Murcurial Air Pumps.** L. Jeyes. 22,214. Dec. 5th.

**Obtaining Chlorine from Spent Liquors, and the Manufacture of Soda Ash, and Apparatus for the Manufacture of Chloride of Lime.** H. Cosnett, B. C. Bennison, S. Hayes, and P. Smallwood. 22,237. Dec. 5th.

**Bleaching Oils and Varnishes.** W. C Shaw. 22,322. Dec. 6th.

**Salt Granulating and Sifting Machinery.** J. H. Barnett and R. Tempest. 22,334. Dec. 6th.

**Improvements in Electrical Welding.** W. P. Thompson. 22,375. Dec. 6th.

**Fuel Briquettes, Fire Bricks, etc.** D. G. Sinclair and J. V. Dunlop. 22,407. Dec. 7th.

**Peptones Free from Albuminous Matters.** O. Imray. 22,442. Dec. 7th.

**Manufacture of Tetra-Nitro-Anthrachrysone.** O. Imray. 22,443 Dec. 7th

**Manufacture of Carbonate of Soda, Caustic Soda, and Chlorine and Apparatus Therefor.** C. P. Taylor. 22,455. Dec. 7th.

**Decolourising Tannic Extracts.** A Sinan and H. Sinan. 22,480. Dec. 7th.

**Improvements in the Manufacture of Bichromate of Soda and Soda Ash** F. H. Gossage and J. Williamson, 22,523. Dec. 8th.

**Sewage Treatment.** J. M Allan. 22,530. Dec. 8th.

**Gas Furnace Kilns for Calcining Limestone, etc.** W. Deighton. 22,531. Dec. 8th.

**New Basic Colouring Matters.** S. Pitt 22,572. Dec. 8th.

**A Chambered Burner, for Burning Mineral Oils.** C. W. Cummings. 22,596. Dec. 9th.

**Apparatus for the Manufacture of Sulphate of Ammonia, and Liquid Ammonia.** R. Dempster. 22,602. Dec. 9th.

**Improvements in the Manufacture of Soap.** P. Zacharias and J. Grunwald 22,605 Dec 9th.

**Smoke Consuming Furnaces.** R Shackleton. 22,662. Dec 9th.

**Petroleum or Naphtha Soap.** S. Stanton. 22,681. Dec. 10th.

**Improvements in the Production of Producer Gas.** J. W. Ormiston, A. R. Ormiston and J. Ormiston. 22,688. Dec. 10th.

**Improvements in the Manufacture of Boric Acid and Borax.** P. Marquart. 22,714. Dec. 10th.

**Manufacture of Gun Powder.** H. Kolf. 22,739. Dec 10th.

# Gazette Notices.

### PARTNERSHIPS DISSOLVED.

S. Hawthorn and H G. Coleman, under the style of Steven Hawthorn and Co., Hanley, colour makers.

G. G. Wilkinson, W. W. Wilkinson and A. Wilkinson, under the style of J. Wilkinson and Son, Kingston-on-Hull, oil, paint, and colour merchants.

### BANKRUPTCY ACTS, 1883 and 1890.

**Receiving Order.**

Fry, Henry William, Fenchurch-avenue, City, and Harold-road, Upton Park, no occupation, late paint manufacturer.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending December 10th.*

**Acetic Acid—**

| | | |
|---|---|---|
| Holland, | 49 pkgs. | J. Owen |
| ,, | 5 | Beresford & Co. |

**Alkali—**

| | | |
|---|---|---|
| E. Indies, | 9 c. | H. Rosenway & Co. |
| France, | 200 | Arnati & Harrison |

**Alumina Sulphate—**

| | | |
|---|---|---|
| Holland, | 135 pkgs. | G. W. Grieff & Co. |

**Antimony—**

| | | |
|---|---|---|
| Australia, | 6 t. | H. Bath & Sons |
| France, | 25 | Smith, Sundius, & Co. |
| Australia, | 25 | T. Merry & Son |
| France, | 1 | B. & F. Wf. Co., Ltd. |
| Sydney, | 10 | Lark, Sons, & Co. |

**Asbestos—**

| | | |
|---|---|---|
| Italy, | £250 | British Asbestos Co. |
| France, | 29 | Mory & Co. |
| Italy, | 840 | M. D. Co. |
| U. States, | 750 | S. Taylor |
| Canada, | 150 | Bolling & Lowe |

**Barium Chloride—**

| | | |
|---|---|---|
| Germany, | 23 pkgs. | Petri Bros. |

**Barytes—**

| | | |
|---|---|---|
| Germany, | 19 cks. | P. Jantzen |
| Belgium, | 41 | J. L. Lyon & Co. |
| ,, | 192 | A. Zumbeck & Co. |
| ,, | 45 pkgs. | W. Harrison & Co. |
| Holland, | 22 | ,, |
| Germany, | 22 | T. T. Creed |
| Belgium, | 30 | H. A. Litchfield & Co. |

**Boracic Acid—**

| | | |
|---|---|---|
| Italy, | 40 pkgs. | J. Puddy & Co. |

**Bromine—**

| | | |
|---|---|---|
| Germany, | 211 pkgs. | A. & M. Zimmermann |

**Calcium Carbonate—**

| | | |
|---|---|---|
| Holland, | 12 pkgs. | Phillipps & Graves |

**Caoutchouc—**

| | | |
|---|---|---|
| Portugal, | 5 c. | L. & I. D. Jt. Co. |
| Madagascar, | 56 | Proctor Bros. |
| ,, | 1 | Lewis & Peat |
| ,, | 32 | Prop. Bull Wf. |
| U. States, | 14 | J. Walker & Co. |
| E. Indies, | 60 | L. & I. D. Jt. Co. |
| ,, | 26 | T. Merry & Sons |
| France, | 5 | Flageollet & Co. |
| Zanzibar, | 24 | L. & I. D Jt. Co. |

**Castor Oil—**

| | | |
|---|---|---|
| Belgium, | 5 brls. | Fuerst Bros. |
| Italy, | 25 cs. | B. & N. Whvs. Co., Ltd. |
| E. Indies, | 500 | Montgomerie & Co. |
| France, | 8 | R. G. Clements & Sons |
| Italy, | 10 | Baiss Bros. & Co. |
| ,, | 20 | Stebbing & Co. |
| ,, | 60 | Italo-Brit. S. N. Co. |
| E. Indies, | 50 | Anderson, Weber, & Smith |

**Caustic Potash—**

| | | |
|---|---|---|
| France, | 21 pkgs. | Spies Bros. & Co. |
| ,, | 106 c. | F. W. Berk & Co., Ltd |

**Chemicals** (*otherwise undescribed*)

| | | |
|---|---|---|
| Germany, | 41 pkgs. | Phillipps & Graves |
| Holland, | 12 | ,, |
| Germany, | 19 | T. H. Lee |
| ,, | 76 | A. & M. Zimmermann |
| Holland, | £15 | J. Owen |
| ,, | 9 | A. & M. Zimmermann |

**Cream of Tartar—**
France, 12 pkgs. B. & F. Wf. Co., Ltd.
,, 5 C. F. Gerhardt
,, 2 Smith, Abbott, & Co.
,, 10 M. Ashby, Ld.
Holland, 22 Middleton & Co.
Germany, 1 ck. Elkan & Co.
France, 6 E. W. Carling & Co.
,, 8 Ross & Deering

**Dyestuffs—**
**Aniline**
Holland, 20 pkgs. Elkan & Co.
**Annatto**
Ceylon, 198 pkgs. Hoare, Wilson, & Co.
**Anthracene**
France, 50 pkgs. Burt, Boulton, & Co.
**Argols**
Italy, 389 pkgs. Thames S. T. & L. Co., Ltd.
**Cochineal**
Holland, 15 pkgs. W. M. Smith & Sons
Canaries, 12 G. S. Bruce
**Cutch**
Rangoon, 100 pkgs. Elkan & Co.
E. Indies, 500 R. G. Hall & Co.
Rangoon, 10 A. Hughes
,, 520 A. Howden & Co.
,, 1,456 Arracan Co., Ltd.
,, 500 Phillipps & Graves
,, 140 Perkins & Homer
E. Indies, 70 Arracan Co., Ltd.
**Extracts**
Austria, 144 pkgs. A. J. Humphrey
Germany, 20 L. & I. D. Jt. Co.
France, 35 Carey & Sons
U States, 25 J. Graves
Belgium, 20 Sawer, Mead, & Co.
Norway, 4 W. E. Bott & Co.
U. States, 52 W. Burton & Sons
France, 17 Beresford & Co.
,, 1 Bailey & Leetham
**Fustic**
Jamaica, 20 t. Park, Macfadyen, & Co.
**Gambier**
E. Indies, 152 pkgs. R. & J. Henderson
,, 186 Beresford & Co.
,, 496 L. & I. D. Jt. Co.
,, 1,736 Adamson, Gilfillan, & Co
France, 491 Hoare, Wilson, & Co.
**Indigo**
E. Indies, 69 chts. L & J. D. Jt. Co.
,, 54 R. Von Glehn & Sons
,, 15 H. W. Jewesbury & Co.
,, 48 Benecke, Souchay, & Co.
,, 7 Arbuthnot, Latham, & Co.
,, 62 W. Brandts, Son, & Co.
Holland, 2 Dipnall & Co.
France, 55 L. & I. D. Jt. Co.
**Myrabolams**
Sydney, 400 pkgs. Marshall & French
E. Indies, 570 Baxter & Hoare
,, 3,415 Brown & Elmslie
**Orchella**
Madagascar, 12 pkgs. Lewis & Peat
France, 38 Prop. Bull Wf.
**Saffron**
Spain, 1 pkg. Prop. Chambln.'s Wf.
,, 3 C. Brumlen & Co.
,, 1 Major & Field
,, 1 Evans, Lescher, & Co.
**Sumac**
Italy, 600 pkgs. J. Kitchin, Ltd.
,, 100 Bourne Bros.
,, 975 Italo-Brit. S. N. Co.
,, 400 Beresford & Co.
**Tanners' Bark**
Austria, 1 t. B. Kuhn
Natal, 14 A. & W. Nesbitt
Belgium, 34 Leach & Co.
**Valonia**
A. Turkey, 117 t. J. Graves

**Farina—**
Holland, 50 pkgs. J. Barber & Co.

**French Chalk—**
Italy, £20 C. F. Gerhardt
Belgium, 95 Magee, Taylor, & Co.

**Gamboge—**
E. Indies, 14 cs. L. & I. D. Jt. Co.

**Glucose—**
U. States, 100 pkgs. 609 c. Fuerst Bros.
,, 100 550 c. M. Duche & Sons
Germany, 23 160 J. Knill & Co.
,, 175 1,400 L. Sutro & Co.
,, 25 200 Pillow, Jones, & Co.
,, 25 192 Prop. Chmbln.'s Wf.
U. States, 120 720 T. M. Duche & Sons
,, 150 900 R. G. Hall & Co.
Germany, 8 42 Dutrulle Solomon & Co.
U. States, 230 1,265 Prop. Chmbln.'s Wf.
,, 100 573 Fowler Bros. & Co.
,, 50 275 H. Johnson & Sons
,, 50 275 Pillow, Jones, & Co.
Germany, 108 800 J. Barber & Co.
,, 190 1,709 R. G. Hall & Co.
France, 100 100 Barrett, Tagant, & Co.
U. States, 600 600 ,,
,, 2,023 2,130 Fellows, Morton, & Co.
,, 550 3,051 L. Sutro & Co.
,, 30 165 Soundy & Sons
,, 25 140 Union L. Co., Ltd.

**Magnesium Sulphate—**
Germany, 105 pkgs. T. Hodgkins & Co.

**Manure—**
Germany, 30 t. Lawes Chemical M. Co.

**Methyl Alcohol—**
Germany, 8 cks. Lister & Biggs
U. States, 207 pkgs. J. Kertel

**Mica—**
U. States, £22 W. M. Smith & Sons
,, 45 Knight & Morris

**Nitric Acid—**
Germany, 10 pkgs. C. J. Capes & Co.

**Ochre—**
France, 81 cks. Burrell & Co.
Holland, 5cs. 12 pkgs. Phillipps & Graves

**Painters' Colours—**
France, 30 pkgs. Flageollet & Co.
Sydney, 10 Major & Field
U. States, 200 brls. G. Steinhoff
Holland, 160 kgs. F. Pryor
,, 9 W. Harrison & Co.
Germany, 1 L. & I. D. Jt. Co.
Belgium, 25 T. Palmer
U States, 146 A. Hughes
Germany, 1 Craven & Co.
,, 21 cks. Elkan & Co.
,, 11 T. H. Lee
Sydney, 59 T. V. Smythe & Co.

**Paraffin Wax—**
U. States, 1,000 brls. H. Hill & Sons
Rangoon, 1,329 cs. ,,
U. States, 50 Williams, Torrey, & Co., Ltd.
,, 218 brls. C. Ogleby & Co.
,, 857 2,825 pkgs. G. H. Usmar & Co.
,, 120 Prod. Brokers Co.

**Phosphate Rock—**
U. States, 1,000 t. Cloid, Routledge, & Co.

**Pitch—**
France, 87 brls. C. B. Leighton

**Plumbago—**
Ceylon, 70 brls. Dunlop Bros. & Co.
,, 194 Hoare, Wilson, & Co.
Japan, 116 J. Forsey
,, 2 bgs. L. & I. D. Jt. Co.
U. States, 600 bxs. Beck & Pollitzer
Germany, 23 cks. Le Seuer & Co.
Holland, 128 B. Gallaway

**Potash—**
France, 110 c. Petri Bros.
,, 186 F. W. Berk & Co., Ltd.

**Potassium Carbonate—**
Germany, 2 pkgs. Elkan & Co.

**Potassium Chloride—**
Holland, 26 pkgs. H. Johnson & Sons
France, 21 Weatherley, Mead, & Co.

**Potassium Permanganate—**
Holland, 10 pkgs. F. Boehm
,, 10 T. Palmer

**Pyrites—**
Spain, 900 t. T. S. Whitehead & Co.
,, 770 Societe Commerciale
,, 2,887 C. Tennant, Sons, & Co.

**Rosin—**
U. States, 4,811 pkgs. Prod. Brokers Co.

**Saltpetre—**
Germany, 60 kgs. 32 cks. P. Hecker & Co.
E. Indies, 310 bgs. Brown & Elmslie
Germany, 6 cks. Craven & Co.

**Sodium Acetate—**
France, 29 pkgs. H. Lorenz
,, 9 S. F. Waters & Co.

**Sodium Hyposulphite—**
Holland, 40 pkgs. A. & M. Zimmermann

**Stearine—**
France, 21 bgs. T. Trapp & Sons
Holland, 125 H. Hill & Sons
France, 144 Beresford & Co.
,, 100 H. Hill & Sons
Belgium, 250 ,,
,, 25 C. S. Lovell

**Sulphur—**
Italy, 10 t. J. Kitchin, Ltd.
,, 20 H. G. Smith
,, 15 Parbury & Co.
,, 8 Brandram Bros. & Co.
,, 33 Union L. Co. Ltd
,, 89 W. C. Bacon & Co.
,, 5 R. Morrison & Co.
,, 42 Soundy & Sons
,, 15 Johnson & Hooper

**Tallow—**
Sydney, 263 cks. J. Owen
,, 94 A. B. Curtis & Co.
,, 597 Aust. Meat Co
,, 85 Anning & Cobb
,, 310 J. Greig
,, 65 Baxter & Hoare
,, 189 Leach & Co.
N. Zealand, 1 ,,
Germany, 1 Phillipps & Graves
Holland, 29 J. Owen
Sydney, 125 Horne & Co.
N. Zealand, 62 J. Graves
,, 118 Brown & Elmslie
,, 20 N. Z. L. & M. A. Co
,, 273 Flack, Chandler, & Co.
,, 17 Bowron Bros.
,, 78 J. Greig

**Tartaric Acid—**
Holland, 13 pkgs. Middleton & Co.
,, 9 G. Boor & Co.
,, 24 B. & F. Wf. Co., Ltd.
France, 20 ,,

**Turpene—**
Germany, 5 F. Stahlschmidt & Co.

**Turpentine—**
Savannah, 4,717 brls. Nickoll & Knight

**Ultramarine—**
Germany, 20 cs. G Steinhoff
Holland, 17 Haeffner, Hilpert, & Co.
,, 5 pkgs. C. J. Capes & Co.
Belgium, 2 brls. W. Harrison & Co.
Holland, 2 cks. Phillipps & Graves

**Varnish—**
U. States, 10 pkgs. Randall Brs.
France, 3 Flageollet & Co.
Holland, 1 J. Owen

**Verdigris—**
France, 2 pkgs. Fuerst Brs.

**Vermilion—**
Germany, 3 cs. Haeffner, Hilpert & Co.

**White Lead—**
Holland, 23 cks. Burrell & Co.
,, 14 Spies Bros. & Co.
,, 27 J. Matton
Germany, 23 M. Ashby, Ltd.
,, 18 S. H. Willoughby
France, 10 J. Watt & Sons
Belgium, 24 Burrell & Co
,, 48 Leach & Co.
Germany, 31 Randall Brs.
,, 20 N. J. Fenner & Co.
,, 39 G. Clifford
Holland, 15 ,,

**Zinc Oxide—**
Holland, 50 cks. Burrell & Co.
,, 25 J. Matton
,, 120 brls. M. Ashby, Ld.

**Zinc Sulphate—**
Germany, 31 pkgs. F. Smith

## LIVERPOOL.

*Week ending December 8th.*

**Acetate of Lime—**
New York, 1,972 bgs.

**Alum—**
Rotterdam, 22 cks.

**Ammonium Carbonate—**
Hamburg, 32 kgs.

**Antimony Salts—**
Hamburg, 1 cs.

**Barytes—**
Antwerp, 6 cks.

**Boracic Acid—**
Leghorn, 12 cks. Pickford & Co.
,, 50

**Borate of Lime—**
Antofagasta, 1,960 bgs. Dario Scheattino

**Caoutchouc—**
Hamburg, 47 cks.

**Castor Oil—**
Genoa, 30 cs. Evans, Sons & Co.
Leghorn, 12
Calcutta, 25 cks. 2,498 cs. Ralli Brs.
Genoa, 5 cs. W. H. Jackson
Venice, 20

**Colours—**
Bremerhaven, 3 cks.
Hamburg, 9
Antwerp, 3 brls. J. T. Fletcher & Co.
Rotterdam, 8 cks.

**Dyestuffs—**
**Annatto**
Bordeaux, 16 cks.
**Argols**
Leghorn, 2 cks.
Bordeaux, 360
Oporto, 41 German Bank of London
**Cochineal**
Gr. Canary, 12 bgs. S. Bruce
,, 18 Widow Duranty & Son
**Divi Divi**
Hamburg, 640 bgs.
**Extracts**
Philadelphia, 70 brls.
Baltimore, 12 R. Schlœsser & Son
Bordeaux, 317 cks.
**Gambier**
Singapore, 230 bls. 470 bgs. R. & J. Henderson
,, 4,524
**Madder**
Rotterdam, 1 ck.
**Saffron**
Valencia, 1 cs.
**Sumac**
Palermo, 316 bls.
Trieste, 100 bgs. F. Stamer
,, 50 N. W. Jackson

**Farina—**
Hamburg, 1 cs.
Fiume, 50 sks. C. J. Vander Veen & Brs.
,, 220
,, 19 W. Wharton
Antwerp, 25 cs. J. T. Fletcher & Co.

**Glucose—**
New York, 249 brls. J. M. Duche & Son
Baltimore, 50
New York, 575
Dunkirk, 100 bgs.

**Horn Piths—**
Rosario, 8,000

**Iodine—**
Iquique, 23 brls. A. Gibbs, Sons & Co.

**Iron Oxide—**
Trieste, 23 brls.

**Lead Acetate—**
Hamburg, 26 cks.

**Magnesium Carbonate—**
Venice, 20 cs.

**Manganese—**
Coquimbo, qty.
Poti, 2,300 t.

**Mica—**
Montreal, 2 pkgs. S. W. Royce & Co.

**Oxalic Acid—**
Rotterdam, 10 cks.

**Paint—**
Boston, 50 cs.

**Paraffin Scale—**
Philadelphia, 259 brls.

**Potash—**
Montreal, 15 brls. J. C. Linton
Hamburg, 10 cks.
Dunkirk, 10 52 dms.

**Potassium Carbonate—**
Hamburg, 63 cks.

**Pyrites—**
Huelva, 2,450 t. & qty. Matheson & Co.

**Rosin—**
New York, 722 brls.

**Saltpetre—**
Calcutta, 529 bgs.

**Soap—**
Philadelphia, 1,201 bxs. 50 crts.
Naples, 74 cs.
New York, 8 Burroughs, Wellcome & Co.
Gr. Canary, 1
Bari, 305

**Soapstone—**
Bordeaux, 100 bgs. G. G. Blackwell

**Sodium Acetate—**
Antwerp, 10 cks.

**Sodium Silicate—**
In transit, 50 cks.

**Stearine—**
Boston, 15 brls.
Baltimore, 125 sks. H. Hill & Sons
Antwerp, 31 bgs.
Rotterdam, 19

**Sulphur—**
Catania, 123 brls. 265 bgs.
Naples, 100

**Talc—**
Bordeaux, 10 bgs.

**Tallow—**
Boston, 197 hhds. 250 tcs.

**Tannic Acid—**
Hamburg, 13 cks.

**Tartar—**
Naples, 4 cks.
Bordeaux, 37

**Tartar Emetic—**
Hamburg, 10 cks. 2 cs.

**Tartaric Acid—**
Rotterdam, 17 cks.

**Tincal—**
Calcutta, 189 bgs.

**Ultramarine—**
Rotterdam, 25 cs. 5 cks.

**Varnish—**
Havre, 1 cs. Cunard S.S. Co., Ld.
Boston, 8 brls. Turner Brs.
" 7 bxs. 30 kgs. F. Hyde & Co.

**Verdigris—**
Bordeaux, 7 cks.

**White Lead—**
Ghent, 16 brls.
Rotterdam, 71 cks.

**Zinc Ashes—**
Boston, 81 brls. Burgass & Co.

**Zinc Oxide—**
Antwerp, 120 brls. J. T. Fletcher & Co.
" 66
Rotterdam, 25 cks.

**Zinc White—**
*Rotterdam,* 30 cks. O. & H. Marcus

## HULL.

*Week ending December 10th.*

**Acetic Acid—**
Rotterdam, 10 cbys. Hutchinson & Son

**Barytes—**
Antwerp, 23 cks. Bailey & Leetham
" 100 bgs. 64 H. F. Pudsey
" 42 Blundell, Spence & Co.
" 44 Wilson, Sons & Co., Ld.
Bremen, 44 G. Holmes & Co.
Rotterdam, 93 Hutchinson & Son

**Caoutchouc—**
Hamburg, 10 cs. Wilson, Sons & Co., Ld.

**Castor Oil—**
Marseilles, 16 cks. Wilson, Sons & Co., Ltd.

**Chemicals** (*otherwise undescribed*)
Dunkirk, 250 bgs. Wilson, Sons & Co., Ld.
Hamburg, 1 ck. G. Lawson & Sons
Bremen, 4 cs. 6 cks. Veltmann & Co.
Dunkirk, 52 pks Wilson, Sons & Co., Ld.

**Chromium Acetate—**
Rotterdam, 1 brl. Hutchinson & Son

**Colours—**
Flushing, 4 cs. 8 cks. 215 pks. Zeeland S. S. Co.
Stettin, 10 cks. Wilson, Sons & Co., Ld.
Rotterdam, 1 ck. 14 pkgs. W. & C. L. Ringrose
" 2 pks. Wilson, Sons & Co., Ld.
Antwerp, 1 cs. "
" 6 cks.
Bremen, 1 cs. Veltmann & Co.
Rotterdam, 7 brls. 63 cks. 19 cs. Hutchinson & Son
" 1 ck. Todd & Son
" 2 cks. Sissons Brs & Co.
" 3 A. Sanderson & Co.
" 10 pks. G. Lawson & Sons
Hamburg, 8 Wilson, Sons & Co., Ltd.

**Cottonseed Oil—**
New York, 1,000 brls. Wilson, Sons & Co., Ltd.

**Cream of Tartar—**
Rotterdam, 2 cks. Hutchinson & Son

**Cryolite—**
Copenhagen, 3 cks. Wilson, Sons & Co., Ld.

**Dextrine—**
Stettin, 260 bgs. Wilson, Sons & Co., Ld.
Hamburg, 600 G. Lawson & Sons

**Dried Blood—**
Libau, 179 bgs.

**Dyestuffs—**
**Alizarine**
Rotterdam, 81 cks. Hutchinson & Son
" 41 pks. W. & C. L. Ringrose
**Madder**
Amsterdam, 2 cks. W. & C. L. Ringrose
Marseilles, 1 Wilson, Sons & Co., Ld.
**Sumac**
Palermo, 15 bls. Wilson, Sons & Co., Ld.
" 150 bgs.

**Farina—**
Hamburg, 190 bgs. Wilson, Sons & Co., Ld.
Stettin, 610 "
Ghent, 80 cs. "
Antwerp, 50 bgs. Bailey & Leetham

**Glucose—**
New York, 50 brls. Wilson, Sons & Co., Ld.
Stettin, 750 bgs. 40 cks.

**Lead Acetate—**
Stettin, 32 cks. Wilson, Sons & Co., Ld.

**Ochre—**
Ghent, 7 brls. Wilson, Sons & Co., Ld.
Marseilles, 93 cks. "

**Phosphate—**
Dunkirk, 50 bgs.

**Pitch—**
Archangel, 800 cks.
Ghent, 60 brls. Wilson, Sons & Co., Ld.

**Potash—**
Rotterdam, 10 cks. G. Lawson & Sons
Antwerp, 112 pks. Wilson, Sons & Co., Ld.

**Pyrites—**
Huelva, 534 t.

**Rosin—**
Wilmington, 826 brls.
" 3,857 G. & J. Rawstorn

**Salt—**
Hamburg, 20 t. G. Hardy & Co.

**Saltpetre—**
Hamburg, 4 cks. 10 kgs. C. M. Lofthouse & Co.

**Soap—**
Bari, 251 cs.

**Sodium Nitrate—**
Rotterdam, 20 cks. Hutchinson & Son

**Sulphur—**
Catania, 4,935 pks. Wilson, Sons & Co., Ltd.

**Talc—**
Leghorn, 6 bls. Wilson, Sons & Co., Ltd.

**Tar—**
Archangel, 528 brls.

**Tartar—**
Naples, 10 cks. Wilson, Sons & Co., Ltd.

**Turpentine—**
Libau, 52 cks.
Wilmington, 1,650 brls.

**Ultramarine—**
Bremen, 2 cks. J. Pyefinch & Co.
" 4 3 cs.

**Varnish—**
New York, 20 brls. Wilson, Sons & Co., Ld.

**White Lead—**
Antwerp, 83 cks. Bailey & Leetham
Rotterdam, 53 Hutchinson & Son

## GLASGOW.

*Week ending December 15th.*

**Acetate of Lime—**
New York, 356 bgs.

**Aniline Colours—**
Amsterdam, 1 cs.

**Barytes—**
Rotterdam, 67 pkgs.

**Colours—**
Rotterdam, 20 cks J. Rankine & Son

**Dextrine—**
Stettin, 110 bgs.

**Dyestuffs—**
**Alizarine**
Rotterdam, 141 cks.
**Extracts**
Antwerp, 5 cks.

**Dyestuffs** (*otherwise undescribed*)
New York, 1 cs.

**Glucose—**
New York, 449 brls.

**Gypsum—**
Hamburg, 1 cs.

**Paint—**
New York, 2 brls.

**Painters' Colours—**
Stettin, 10 cks.
Antwerp, 1

**Paraffin Scale—**
New York, 36 brls. H. Hill & Sons
" 66

**Paraffin Wax—**
New York, 100 brls.

**Phosphate of Lime & Rock—**
Ghent, 1,000 bgs.

**Potash—**
Rotterdam, 58 cks. J. Rankine & Son

**Pyrites—**
Huelva, 1,708 t. Th

**Saltpetre—**
Calcutta, 3 cs.

**Soap—**
Philadelphia, 400 bxs. 26 crts.

**Stearine—**
Hamburg, 80 bgs.

**Tallow—**
New York, 145 trcs.

**Tar—**
New York, 430 brls. 168 cs.

**Varnish—**
New York, 7 cs. 30 brls. 1

**Zinc Ashes—**
New York, 2 cs.

**Zinc Oxide—**
Antwerp, 11 cks.
New York, 50 brls.

## TYNE.

*Week ending December 10t*

**Antimony—**
Hamburg, 5 cs. Tyne S. S

**Barytes—**
Antwerp, 89 cks. Tyne S. S

**Colours—**
Antwerp, 2 cks. Tyne S. S

**Glucose—**
New York, 50 brls. Furness, W

**Limestone—**
Antwerp, 2 cs. Tyne S. S

**Pyrites—**
Huelva, 2,718 t. Sout

**Saltpetre—**
Hamburg, 18 cks. Tyne S. S.

**Tallow—**
New York, 260 pkgs. Fur Withy &

## GOOLE.

*Week ending November 30th.*

**Alum—**
Rotterdam, 16 brls.

**Chemicals** (*otherwise undescrib*
Rotterdam, 32 cks.

**Dyestuffs—**
**Alizarine**
Rotterdam, 71 pkgs. 14 brls.
**Extracts**
Hamburg, 41 cks.
Ghent, 50

**Dyestuffs** (*otherwise undescrib*
Boulogne, 41 cks. 12 cs. 18 pk

**Farina—**
Hamburg, 1,740 bgs.
Delfszyl, 1,146

**Glucose—**
Calais, 650 bgs.
Dunkirk, 80
Hamburg, 52 cks.

**Potash—**
Calais, 41 dms. 20 cks.
Dunkirk, 39 5

**Pyrites—**
Huelva, 600 t.

**Saltpetre—**
Rotterdam, 100 bgs.
Hamburg, 2 cks.

**Soda—**
Rotterdam, 40 brls.
Antwerp, 12 cks.

**Tar Oil—**
Ghent, 26 cks.

**Waste Salt—**
Hamburg, 313 t. 370 brls. 308

**White Lead—**
Rotterdam, 5 brls.

## GRIMSBY.

*Week ending December 3rd.*

**Dyestuffs** (*otherwise unescri*
Dieppe, 18 cks.

**Farina—**
Hamburg, 20 bgs.

**Size—**
Antwerp, 9 cks.

**Zinc Ashes—**
Antwerp, 27 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending December 14th.*

**Acids—**
Aden, 5 drs. £8
**Alkali—**
Dunedin, 1 t. 2 c. £8
E. London, 1 15 12
**Alum—**
Hamburg, 1 t. 19 c. £11
Cape Town, 1 6
**Aluminous Cake—**
Bordeaux, 4 t. 17 c. £25
**Ammonia (Liquid)—**
Yokohama, 3 cs. £12
**Ammonia Salts—**
Yokohama, 2 t. 5 c. £70
Kobe, 2 70
**Ammonium Carbonate—**
Bordeaux, 1 t. 2 c. £30
Melbourne, 5 8
Sydney, 1 15 63
B. Ayres, 10 19
Adelaide, 3 5
Mauritius, 6 cs. 20
**Ammonium Chloride—**
Auckland, 1 t. 1 c. £20
Christchurch, 1 21
Adelaide, 4 174
Gothenburg, 1 22
**Ammonium Sulphate—**
Martinique, 90 t. 1 c. £957
Colombo, 3 2 37
Ghent, 19 190
Hamburg, 51 510
Demerara, 100 1,050
**Arsenic—**
Bluff, 4 t. 10 c. £68
Lyttelton, 1 9 20
**Barium Nitrate—**
Bombay, £5
**Benzoic Acid—**
New York, 3 cs. £38
**Bisulphide of Carbon—**
Melbourne, 150 drs. £74
B. Ayres, 60 30
**Borax—**
Rangoon, 12 t. 6 c. £250
Melbourne, 20 cks. 32
**Carbolic Acid—**
Melbourne, 16 c. £24
Yokohama, 6 t. 239
Kobe, 3 120
Cape Town, 1 cs. 9
Colombo, 1 4 34
Hamburg, 42 cks. 286
Treport, 13 27
**Caustic Soda—**
Algoa Bay, 2 t. 6 c. £81
Lyttleton, 10 3 104
Brisbane, 5 9 57
Melbourne, 5 13
Natal, 5 6 68
E. London, 2 6 77
Dunedin, 5 54
Cape Town, 10 15
**Chemicals** *(otherwise undescribed)*
Algoa Bay, 5 cs. 20 kgs. 20 dms. £66
Natal, 13 76
Cape Town, 12 58
**Chloride of Lime—**
Boca, 1 t. 15 c. £27
**Citric Acid—**
B. Ayres, 11 c. £101
M. Video, ½ 4
Hamburg, 16 127
Liban, 22 cks. 565
Hobart, 1 8
Auckland, 1 9
Rotterdam, 10 80
Lisbon, 8 95
**Coal Products—**
**Anthracene**
Rotterdam, 63 cks. £268
**Benzol**
Rotterdam, 20 pns. 122 cks. £586
Philadelphia, 19 drs. 221
**Coal Tar Dyes**
Calcutta, 2 cs. £53
Boston, 3 pkgs. 84
**Coal Tar Extracts**
Dunkirk, 2 drs. £12
**Creosote**
Philadelphia, 10 cs. £103
Dieppe, 657 cks. 178
**Naphtha**
Calais, 26 cks. 60
**Naphthalene**
Le Treport, 53 cks. £47
Hamburg, 199 bgs. 30
**Paraffin Wax**
Auckland, 1 tk. £37
**Pitch**
Sydney, 20 cks. 20 bxs. £15
Antwerp, 1,428 t. 2,071
New York, 275 81
Havre, 284 490
Philadelphia, 500 250
Adelaide, 56 pkgs. 22
Cette, 1,402 2,038
Terneuzen, 252 353
**Pyridine**
Hamburg, 22 cks. 177
**Tar**
Sydney, 200 dms. 30 cks. £72
Colombo, 4 rnlts. 10
**Copperas—**
Algoa Bay, 10 kgs. £2
**Copper Sulphate—**
Lyttelton, 5 t. £72
Otago, 4 5 c. 63
Wellington, 10 8
Bordeaux, 2 10 40
Seville, 5 14 85
Canterbury, 1 15
Leghorn, 10 150
**Cream of Tartar—**
B. Ayres, 1 c. £5
M. Video, 2 9
Adelaide, 2 t. 11 232
Brisbane, 15 70
Auckland, 15 70
N. Plymouth, 2 9
Sydney, 1 83
Melbourne, 4 10 384
Wellington, 3 13
Hobart, 3 12
**Cyanide—**
Yokohama, 5 c. £26
**Disinfectants—**
Saigon, 2 cs. 4 cks. £11
Adelaide, 4 12
Otago, 6 19
Boston, 22 152
Kurrachee, 10 drs. 14
Melbourne, 35 18 c. 161
**Flowers of Sulphur—**
Algoa Bay, 5 t. 2 c. £63
Auckland, 10 5
Pt. Elizabeth, 18 10
**Guano—**
Jersey, 69 t. 10 c. £530
Guadeloupe, 399 4,389
**Hydrogen Peroxide—**
Melbourne, 1 cs. £5
**Hypophosphites—**
New York, 25 cs. £200
**Manure—**
Alicante, 29 t. 3 c. £232
Tarragona, 14 11 112
Malaga, 22 16 158
Lisbon, 1 7 15
Colombo, 8 13 58
Ghent, 175 1,750
Demerara, 15 17 155
Jersey, 103 11 885
Hamburg, 305 3 2,050
**Nitric Acid—**
Otago, 5 cs. £7
**Oxalic Acid—**
Gibraltar, 6 c. £15
**Phosphorus—**
Wellington, 4 cs. £30
Dunedin, 19 c. 1,000 lbs. 322
Lyttelton, 5 51
**Potash—**
Yokohama, 1 t. £30
Azores, 1 1 c. 30
Otago, 6 5
**Potassium Carbonate—**
Lisbon, 2 cs. £5
**Potassium Chlorate—**
Copenhagen, 2 t. £130
Bombay, 4 c. 8 cs. 53
Cape Town, 2 kgs. 8
Hong Kong, 5 cks. 23
**Potassium Chloride—**
Martinique, 49 t. 6 c. £412
**Potassium Citrate—**
Lisbon, 1 cs. £9
**Potassium Cyanide—**
Yokohama, 5 cs. £25
**Saltpetre—**
Lisbon, 7 t. 10 c. £155
B. Ayres, 6 7
Algoa Bay, 9 10
Ghent, 1 2 25
Brisbane, 10 11
Cape Town, 10 10
N. Plymouth, 11 11
Rio de Janeiro, 12 7 278
Bahia, 19 6 435
Oporto, 7 8 149
Hobart, 5 5
**Sheep Dip—**
Invercargill, 300 cs. £900
Lyttelton, 20 cks. 65 pkgs. 141
Pt. Elizabeth, 3 t. 8 c. 123
Pt. Chalmers, 110 60
Mossel Bay, 12 cs. 33
San Francisco, 300 900
**Soda—**
Cape, 1 t. 10 c. £5
Cape Town, 1 4 4
Boulogne, 3 7
**Soda Ash—**
Brisbane, 10 c. £10
**Soda Crystals—**
Sydney, 4 t. 1 c. £15
Huelva, 1 4
Natal, 1 10 6
**Sodium Bicarbonate—**
Algoa Bay, 10 c. £8
Melbourne, 1 t. 8
Sydney, 6 14 44
Cape Town, 6 2
Hobart, 1 5 11
**Sodium Carbonate—**
Wellington, 10 c. £12
E. London, 6 5
Christchurch, 5 8
**Sodium Nitrate—**
Grenada, 3 t. 1 c. £32
**Sodium Sulphate—**
Ghent, 50 t. £75
**Strontium Nitrate—**
Bombay, £7
**Sulphur—**
Calcutta, 28 t. £165
**Sulphuric Acid—**
Cape, 8 t. 15 c. £37
E. London, 35 cs. 28
**Superphosphate of Lime—**
Martinique, 265 t. £1,119
**Tartaric Acid—**
Hamburg, 10 c. £54
Wellington, 5 25
B. Ayres, 1 t. 3 130
Melbourne, 10 kgs. 51
Auckland, 1 6 147
N. Plymouth, 2 12
Kurrachee, 2 cs. 11
Sydney, 1 193
Adelaide, 1 13 166
Boulogne, 5 30
Hobart, 1 5
**Tartaric Acid and Cream of Tartar—**
Wellington, 8 cs. £39

## LIVERPOOL.

*Week ending December 14th.*

**Acetate of Iron—**
Rio de Janeiro, 9 c. 2 q. £5
**Alkali—**
St. John's, Nfld., 11 c. £10
**Alkali Waste—**
Antwerp, 10 t. 2 c. £31
**Alum—**
Santander, 3 t. 10 c. 1 q. £18
Bilbao, 1 7 2 8
Smyrna, 14 4 69
Syra, 4 10 27
**Ammonia (Liquid)—**
Callao, 10 cs. £50
**Ammonium Carbonate—**
Venice, 1 t. 10 c. £28
Leghorn, 1 26
Genoa, 1 28
**Ammonium Chloride—**
Genoa, 11 c. 1 q. £12
Trieste, 1 t. 35
Tangiers, 6 9
Iquique, 2 5
**Ammonium Sulphate—**
Alicante, 20 t. £199
Rotterdam, 26 10 t. 267
Dunkirk, 60 8 2 q. 660
Valencia, 96 13 2 1,031
Gr. Canary, 10 106
Venice, 151 6 2 1,569
Barcelona, 10 2 3 104
Genoa, 50 14 508
St. Nazaire, 10 105
**Antimony—**
Vera Cruz, 2 cks.
Lisbon, 2
**Arsenic—**
Bilbao, 1 t. 1 q. £14
**Barytes—**
Lisbon, 11 brls. 5 t. 18 c.
**Bleaching Powder—**
Antwerp, 30 cks.
Baltimore, 123
Boston, 1,157
Calcutta, 100 cs.
Chicago, 30 bxs.
Genoa, 41
Hamburg, 32
Lisbon, 6 100 brls.
Melbourne, 84
Naples, 188
New York, 448
Oporto, 40 30
Rio de Janeiro, 5 cs
Rouen, 12
Venice, 21
Bombay, 8
Ghent, 96
Havana, 25
Philadelphia, 29
San Sebastian, 34
Baltimore, 50 t. 3 c. £414
Callao, 10 2 q. 6
**Borax—**
Santander, 2 t. 1 c. 3 q. £62
Santiago de Cuba, 7 11
Rotterdam, 16 1 485
**Calcium Chloride—**
New York, 24 t. 5 c. £55
**Caoutchouc—**
Carrizal, 1 ck. 1 cs.
**Carbolic Acid—**
Calcutta, 4 cs. £78
**Castor Oil—**
Rosario, 100 cs.
**Caustic Potash—**
Barcelona, 14 c. £16
**Caustic Soda—**
Amsterdam, 20 dms.
Antonina, 40
Bahia, 10
Baltimore, 270 brls.
Barcelona, 132 40 cks.
Boston, 35
B. Ayres, 4
Callao, 25 kgs. 75
Chicago, 50 bxs. 10
Corfu, 40
Dundas, 18
Fiume, 50
Genoa, 251
Halifax, 34
Hamburg, 287
Havana, 110
La Guayra, 10
Latakia, 20
Lisbon, 45 12
Maracaibo, 10
Melbourne, 159
Messina, 85
M. Video, 200
New York, 405 120
Odessa, 50
Oporto, 85
Puerto Cabello, 53
Rouen, 34
San Francisco, 10 bxs.
,, Sebastian, 131

Santander, 54 12 cks.
Seville, 40 kgs. 150 64
Shanghai, 50
Sydney, 129 10 bxs.
Bombay, 200 kgs.
Carthagena, Sp., 20 30
Dunedin, 18
New Orleans, 50
Paysandu, 50
Penang, 30
Petrolia, 38
Smyrna, 180
Sourabaya, 35
Yokohama, 130

**Chemicals** *(otherwise undescribed)*
Genoa, 1 t. 5 c £42
Hamburg, 1 3 35
Alexandria, 10 cs. 1 51
Boston, 3 13 80
New York, 15 9 525
Smyrna, 15 25
Varna, 1 33
Barcelona, 1 1 34
Rosario, 3 5

**China Clay—**
Boston, 484 t.
New York, 10 cks.
Bombay, 91 t. 13 c.
Canada, 760 cks.
Colombo, 24
Halifax, 60 bgs.
Vera Cruz, 19¾ t.

**Citric Acid—**
Genoa, 5 c. £39
Valparaiso, 13 2 q. 109

**Coal Products—**
**Aniline Colours**
Hiogo, 5 cs.
Bollate, 1 kg.
Constantinople, 7
Shanghai, 25
**Aniline Dyes**
Rio de Janeiro, 2 cs.
**Aniline Oil**
Genoa, 5 dms.
**Aniline Salts**
New York, 15 cks. 10 cs.
Bombay, 4 2 kgs.

**Cobalt Oxide—**
Valencia, 3 q. £42

**Copperas—**
Smyrna, 3 t. 3 c. £6
Callao, 3 10 8
Syra, 3 15 7
Almeria, 24 55
Volo, 10 6 1 q. 22

**Copper Sulphate—**
Ancona, 9 t. 19 c. 3 q. £144
Bordeaux, 75 1 2 1,125
Venice, 10 2 2 147
Trieste, 30 9 1 456
Oporto, 1 19 31
Genoa, 16 19 271
Brisbane, 8 128
Melbourne, 2 10 41
Almeria, 28 8 455
Vigo, 1 2 18
Rouen, 11 6 169

**Cream of Tartar—**
St. John's, Nfld., 5 c. £21

**Disinfectants—**
Progresso, 1 c. 3 q. £6
Colombo, 3 8
Bombay, 2 t. 3 51
Rangoon, 10 cks. 6
New York, 1 17 86
Odessa, 14 2 35
Yokohama, 2 84

**Dried Blood—**
Montreal, 3 t. 5 c. £40
Rouen, 25 6 175

**Farina—**
Bombay, 18 bgs.
Rio de Janeiro, 10

**Flowers of Sulphur—**
Cienfuegos, 2 t. £15

**Gypsum—**
New York, 54 t. 7 c. £154

**Iron Chloride—**
Bordeaux, 20 t. £72

**Lead Acetate—**
Calcutta, 1 t. 10 c. £44

**Lime—**
C. C. Castle, 25 brls.

**Magnesia—**
Talcahuano, 5 cks.
New York, 18 cs.

**Magnesium Chloride—**
Barcelona, 10 c. 2 q. £8
Montreal, 7 t. 16 22

**Manganese—**
Baltimore, 20¾ t.
Boston, 15 8 c.

**Manure—**
Las Palmas, 1 t. 10 c. 2 q. £5

**Metallic Sodium—**
Rotterdam, 3 t. 16 c. 3 q. £771

**Paint—**
Amsterdam, 6 kgs. 6 dms.
Antwerp, 10 40
Beyrout, 21
B. Ayres, 15 cks.
Cephalonia, 60
Gibraltar, 71
Havana, 2 tcs.
Lisbon, 14 cs. 102 4
Parnahiba, 3
Payta, 6 cs.
Port-au-Prince, 25 65
St. Croix, 1 2
Santa Catherina, 4 brls.
Victoria, B.C., 26
Bombay, 18 kgs.
Cardenas, 6
Cienfuegos, 1 cs. 3
Gr. Canary, 2
Odessa, 77
Oporto, 19
Para, 11
Pernambuco, 10
Pisagua, 6 cs. 10
Pt Natal, 60 2
St. Thomas, 4
Salonica, 2 brls.
Santiago, 1
Smyrna 15
Trinidad, 8 pkgs.
Valparaiso, 35 305 cs. 145 brls.
Vera Cruz, 11 cks.

**Painters' Colours—**
Antonina, 70 kgs.
Bahia, 2 cs. 1 ble. 40 3 brls. 6 cks.
Bombay, 45 cs.
B. Ayres, 24 50 19
Calcutta, 40
Cardenas, 2
E. London, 25
Hong Kong, 200 3
Madras, 50
M. Video, 1 dm. 29
New York, 427
Opobo, 4
Oporto, 15
Para, 6 tcs. 10 1
Patras, 24
Pernambuco, 20
Philadelphia, 200
Porto Alegre, 10
Santiago, 1 1
Trinidad, 20
Valparaiso, 1 cs. 23 30
Amsterdam, 30 bls.
Antwerp, 5
Ceara, 16
Gijon, 1 cs.
Halifax, 4
Hamburg, 5
Humacao, 70
Malta, 65
Mayaquez, 5 tcs.
Melbourne, 1 bx.
New Orleans, 200

**Paraffin Wax—**
Marseilles, 50 cs.
Piræus, 1

**Phosphorus—**
Santander, 1 c. £11

**Pitch—**
Diego, 18 brls.
Marseilles, 500 t.
Kurrachee, 38 2 c.
Valparaiso, 48 2

**Plumbago—**
Alicante, 1 ck.

**Potassium Bicarbonate—**
New York, 10 t. 6 c. £183

**Potassium Bichromate—**
Rio de Janeiro, 7 c. 2 q. £15
Marseilles, 2 t. 10 75
Naples, 10 22

**Potassium Carbonate—**
New York, 12 t. 12 c. £220

**Potassium Chlorate—**
Hamburg, 1 t. £48
Rotterdam, 2 10 c. 154
Shanghai, 5 260
Gothenburg, 10 25
Corunna, 12 33
New York, 5 285
Philadelphia, 7 10 345
Yokohama, 1 47
Hiogo, 27 10 1,273

**Potassium Stannate—**
Bombay, 1 t. 4 c. 1 q. £104

**Rosin Oil—**
Oporto, 10 brls.

**Salt—**
Calcutta, 3,452 t.
Dunedin, 5
Guayaquil, 1 8 c.
Jamaica, 5
Melbourne, 50
New Orleans, 640
Antwerp, 475
Baltimore, 300
Boston, 301
Brass, 5
Cabenda, 4
Cameroons, 10
Conakry, 35
Fernando Po, 4½ 37
Ghent, 309
Gr. Bassa, 5
Landana, 5
Manaos, 10
Mussura, 58 18
Natal, 165¾
Nykjobing, 530
Quilla, 150
Rio de Janeiro, 1
Santos, 2½
Sierra Leone, 100
Trinidad, 56
Wellington, 19

**Salt Cake—**
Baltimore, 433 t. 15 c. £1,004
Kokomo, 150 1 372

**Saltpetre—**
Rio de Janeiro, 1 t. 3 c. 3 q. £28
Rosario, 1 23
Santos, 4 18 110
Savanilla, 2 6 2 59
Maranham, 1 8 30
Pernambuco, 2 10 65

**Sheep Dip—**
B. Ayres, 22 cs. £35
Natal, 1 t. 15 c. 50

**Size—**
Guayaquil, 4 cks.

**Soap—**
Alexandria, 11 cs.
Amsterdam, 155 bxs.
Bombay, 200 6 9 cks.
Calcutta, 4 250 bdls.
Callao, 1
C. C. Castle, 40 4
Coquimbo, 1
Hong Kong, 100 kgs.
Las Palmas, 1,090
New Orleans, 2 cks.
" York, 256 61 25 tcs.
Para, 1
Rangoon, 505 12
Rouen, 15
Santa Cruz, 500
Singapore, 410 22
Smyrna, 50
Toronto, 3
Valparaiso, 28 81
Wellington, N.Z., 350
Algoa Bay, 2,082
Axim, 22
Bakana, 100
Barbadoes, 650
Belize, 300
Boca, 50
Bonny, 100
B. Ayres, 7
Cameroons, 175
Capetown, 1,050
Colombo, 4
Constantinople, 300
Coronel, 660
Curacao, 400
E. London, 500
Elmina, 100
Gibraltar, 322
Havre, 58
Kingston, Jam., 25
Lansarote, 73
Lisbon, 25
Loango, 50
Lucea, 75
Malta, 40
Mauritius, 60
Mellila, 75
Mossel Bay, 100
Natal, 150
Oporto, 300
Patras, 13
Piræus, 19
Pt. Elizabeth, 1,700
Quittah, 16
Rio de Janeiro, 3 10
St. John's, Nfld., 285
Shanghai, 300 2
Sierra Leone, 200 4
Teneriffe, 336
Trinidad, 650

**Soda Alkali—**
Adelaide, 50 brls.
Callao, 35
Odessa, 100

**Soda Ash—**
Adelaide, 65 cks.
Antonina, 15 dms
Baltimore, 778 2,100 bgs
Barcelona, 34 10
Boston, 429 600
B. Ayres, 20 450 brls
Calcutta, 3
Callao, 40
Corfu, 200
Havana, 3
Leghorn, 16
Maranham, 60
Naples, 15
New York, 1,110 4
Philadelphia, 510 1
Puerto Cabello, 15 12
Smyrna, 70 440
Syra, 50
Zante, 112
Bombay, 7
M. Video, 26
Oporto, 38
Para, 10 kgs.
Paysandu, 50
Patras, 25
Rio de Janeiro, 50
Salonica, 50
San Francisco, 191
Talcahuano, 100

**Soda Crystals—**
B. Ayres, 110 brls 100 kgs.
Constantinople, 50
Malta, 50 cks.
New York, 280
Philadelphia, 168
St John's, Nfld.,
Smyrna, 50 50
Boston, 280
Capetown, 15
Gibraltar, 15
Messina, 8
Oporto, 44
Piræus, 20
Valparaiso, 100 bgs.

**Sodium Arseniate—**
Lisbon, 1 ck.

**Sodium Biborate—**
Progresso, 2 brls.

**Sodium Bicarbonate—**
Adelaide, 55 kgs.
Bahia, 20
Carthagena, Sp., 50
Constantinople, 50
Marseilles, 124
St. John's, Nfld., 20
Seville, 20 brls. 4

**Sodium Bichromate—**
Ghent, 16 cks.
Rio de Janeiro, 1
Oporto, 3

**Sodium Carbonate—**
Rotterdam, 50 brls.
New York, 140

**Sodium Chlorate—**
Fiume, 20 kgs.
Hamburg, 20
Rotterdam, 20 cks.
Boston, 50
New York, 100

**Sodium Silicate—**
Barcelona, 16 cks. 125 brls.
Ghent, 7
Lisbon, 8
Barranquilla, 10
Piræus, 43
Pt. Louis, 10
Santander, 7
Savanilla, 16
Seville, 50

**Sodium Sulphate—**
Bangkok, 2 cs.

**Sulphur—**
Ghent, 10 t. 1 c.
Boston, 75
Rotterdam, 85
Maranham, 8

**Sulphuric Acid—**
Rio Grande do Sul, 19 c. 2 q.

**Superphosphate—**
Valencia, 60 t. 10 c. 2 q.
Gr. Canary, 5 3

**Tallow—**
Bombay, 25 cks.
Venice, 5 1 brl.

**Tar—**
Philadelphia, 32 t. 11 c.
Kurrachee, 30 15
Pt. Natal, 65 dms.
**Turpentine—**
Mossel Bay, 50 dms.
**Varnish—**
B. Ayres, 12 cs.
Callao, 5
Calcutta, 2
Lisbon, 2
**White Lead—**
B. Ayres, 10 cks.
**Zinc Chloride—**
Bombay, 6 t. 18 c. 2 q. £114
Bordeaux, 10 17 72

## HULL.

*Week ending December 10th.*

**Alkali—**
Libau, 17 cks.
Leghorn, 23
**Aluminium—**
Rotterdam, 1 ck.
**Bleaching Powder—**
Gothenburg, 2 cks.
Groningen, 34
Stettin, 86
**Borax—**
Riga, 7 cks.
**Caustic Soda—**
Abo, 22 dms. 14 cs.
Danzig, 66
Konigsberg, 36
Libau, 102
Naples, 38
Riga, 374
Stettin, 34
**Chemicals** (*otherwise undescribed*)
Antwerp, 20 cs.
Amsterdam, 10 cks. 23 pks.
Abo, 15
Alexandria, 12 5
Constantinople, 21
Christiania, 6 7 11 pkgs. 932 slbs.
Copenhagen, 15
Danzig, 1 126 kgs.
Dunkirk, 202
Flushing, 12
Ghent, 4
Gothenburg, 15 1 29
Genoa, 59
Hamburg, 53 25
Libau, 15 80
Marseilles, 9 6
Naples, 3
Odessa, 20
Rotterdam, 122 308 10 1 pkg. 60
Riga,
Reval, 25 20 150
Stettin, 2
**Cottonseed Oil—**
Antwerp, 473 c.
Alexandria, 35
Bremen, 50
Copenhagen, 102
Drontheim, 41
Flushing, 140
Gothenburg, 70
Genoa, 360
Hamburg, 2,693
Marseilles, 1,050
Rotterdam, 5,870
**Creosote—**
Amsterdam, 9 cks.
**Dyestuffs** (*otherwise undescribed*)
Christiania, 100 bls.
Danzig, 2 cs.
Hamburg, 1
Rotterdam, 7 11 cks.
Riga, 2
Stettin, 1 66 bgs.
**Linseed Oil—**
Antwerp, 16 c.
Alexandria, 188
Bordeaux, 21
Christiania, 308
Christiansund, 28
Drontheim, 60
Hamburg, 1,083
Rotterdam, 207
Stavanger, 28
**Manure—**
Antwerp, 990 bls.
Copenhagen, 31 cks.
Ghent, 19 t.
Genoa, 1
Rotterdam, 10
**Mineral White—**
Rotterdam, 5 cks.
**Ochre—**
Hamburg, 1 ck.
**Painters' Colours—**
Antwerp, 4 cs. 6 cks. 36 pkgs.
Amsterdam, 4 1 dm.
Abo, 1
Bremen, 2
Constantinople, 1 4
Christiania, 1 1
Christiansand, 60
Copenhagen, 4
Flushing, 2
Ghent, 1 34
Gothenburg, 1 4
Hamburg, 1 7
Konigsberg, 15
Leghorn, 1 1
New York, 268
Odessa, 95
Rotterdam, 1 24 2
Rouen, 1 12
Stettin, 17
Stockholm, 1 1
**Paraffin Wax—**
Danzig, 100 bls.
Libau, 1 ck.
Odessa, 120
**Pitch—**
Antwerp, 332 t.
Dunkirk, 200
**Size—**
Copenhagen, 3 cks.
**Soap—**
Copenhagen, 10 cs
Hamburg, 11
Stettin, 10
**Tallow—**
Flushing, 4 cks.
Stockholm, 25
**Tar—**
Antwerp, 3 cks.
Danzig, 5
Rotterdam, 5
**Turpentine—**
Alexandria, 12 cks.
**Varnish—**
Copenhagen, 5 cks.
Ghent, 1 1 cs.
Hamburg, 2
Harlingen, 2
Leghorn, 1 2 dms.
Naples, 8

## GLASGOW.

*Week ending December 15th.*

**Ammonium Sulphate—**
Nantes, 256. 2½ c. £251
Antwerp, 75 12½ 750
Charente, 60 17¾ 610
Demerara, 287 12¾ 2,766
Leghorn, 20 8 240
**Benzol—**
Dieppe, 14 t.
**Carbonate of Potash and Carbonate of Soda—**
New York, 49 t. 3 c. £1,622
**Caustic Soda—**
Bombay, 10½ c. 14 lbs.
**Colours—**
Calcutta, 4 t. 17½ c. £80
**Copperas—**
Bombay, £35
**Cottonseed Oil—**
Hungary, 3 t. 19½ c. £74
**Creosote Oil—**
St. Malo, 191 t. £380
Christiania, 30 brls. 13
**Dyestuffs—**
**Aniline**
Calcutta, ¾ c. £21
**Extracts**
Portland, Me., 5 t. 12 c. £156
**Indigo Extract**
New York, 3 t. 14 c. £75
**Farina—**
Antwerp, 4 t. 18 c. £55
**Linseed Oil—**
Portland, Me., 15 t. 16¾ c. £250
**Magnesium Sulphate—**
Bombay, 5 t. 10 c. £22
**Manure—**
Barbadoes, 50 t. £325
**Naphtha—**
Dieppe, 8 t.
**Paint—**
Chili, 33 t. 10¾ c. £724
Calcutta, 7 70
New York, 13 15½ 204
Demerara, 38
Bombay, 7 19
**Painters' Colours—**
Calcutta, 7 t. 1½ c. £115
Straits, 10 14¾ 161
**Paraffin Wax—**
Nantes, 1 t. 5¾ c. £39
Peru, 1 17¾ 71
Antwerp, 1 6¾ 40
Hungary, 25 9¾ 726
Leghorn, 2 7 £69. 10s.
**Pitch—**
Rochefort, 1,092 t. 7 c. £1,638
Malta, 6 17½ £22. 10s.
Gijon, 940
**Potassium Bichromate—**
Philadelphia, 7 t. 7½ c. £276
Gothenburg, 5 17¾ 225
Antwerp, 25 12 980
**Potassium Iodide—**
Bombay, 1 t. 1 c. £62
**Rosin Oil—**
Antwerp, 2½ t. £20
**Salt Cake—**
Baltimore, 199 t. 15 c. £200
**Sheep Dip—**
Chili, 8 t. 1 c. £288
**Soap—**
Calcutta, 1 t. 19¼ c. £28
Bombay, 1 2¼
**Soda Ash—**
New York, 100 t. 13 c. £541
Philadelphia, 201 3 1,081
**Soda Crystals—**
Bombay, 4 t. 14 c.
**Tallow—**
Rotterdam, 11 t. 8 c. £471
Trinidad, 16 14 lbs. 24
**Tar—**
Calcutta, £179
,, 99 t. 19¼ c. 173
Halifax, 25 52
Straits, 124
**Varnish—**
Bombay, 4 c.
**White Lead—**
Bombay, 3 t. 3½ c.

## TYNE.

*Week ending December 10th.*

**Alkali—**
Rotterdam, 4 t. 14 c.
Venice, 8 14
**Ammonium Carbonate—**
Constantinople, 5 t. 10 c.
**Ammonium Chloride—**
Constantinople, 3 t. 9 c.
**Ammonium Sulphate—**
Hamburg, 50 t.
Venice, 10
**Antimony—**
Rotterdam, 5 t.
Copenhagen, 6 c.
Bergen, 1
**Anthracene—**
Rotterdam, 16 t. 10 c.
**Arsenic—**
Venice, 10 t. 10 c.
Gothenburg, 1 9
**Barytes—**
Hamburg, 100 t.
Copenhagen, 1
**Bleaching Powder—**
Antwerp, 34 t. 11 c
Hamburg, 29 19
Christiania, 10 1
Odense, 1
Oporto, 4 9
Rotterdam, 22 12
Copenhagen, 1 9
San Francisco, 15 15
Venice, 15 18
Trieste, 25
Groningen, 10
Riga, 149 18
Odessa, 4 9
**Borax—**
Ergasteria, 15 c.
**Carbolic Acid—**
Ergasteria, 1 c.
**Caustic Soda—**
Antwerp, 10 t. 3 c.
Rotterdam, 12 3
San Francisco, 43 10
Venice, 69 9
Constantinople, 203 18
Riga, 20
Odessa, 308 12
Gothenburg, 4 18
**Copperas—**
Bergen, 2 t. 14 c.
**Litharge—**
Oporto, 3 t. 15 c.
**Magnesia—**
Hamburg, 5 c.
Odense, 1
Constantinople, 3
**Magnesium Sulphate—**
Constantinople, 5 t.
**Naphthalene—**
Riga, 25 t. 9 c.
**Paint—**
Antwerp, 11 c.
Rotterdam, 10
Copenhagen, 11
Venice, 17
**Potash—**
Ergasteria, ¼ c.
**Soda—**
Gothenburg, 6 t. 1 c.
Rotterdam, 24 18
San Francisco, 154 7
Bergen, 5 8
Drontheim, 15 2
Venice, 6 13
Trieste, 5 3
Constantinople, 26 14
**Soda Ash—**
Hamburg, 2 t.
Odense, 2 17 c.
Oporto, 2 13
Copenhagen, 19 15
Venice, 30 17
Constantinople, 20 1
Odessa, 39 14
Gothenburg, 61 15
**Sodium Hyposulphite—**
Constantinople, 2 t.
**Sodium Silicate—**
Malta, 5 t. 3 c.
**Sodium Sulphate—**
Venice, 20 t. 9 c.
Groningen, 50
**Sulphur—**
Gothenburg, 145 t.
**Superphosphate—**
Venice, 100 t. 1 c.
**Tallow—**
Hamburg, 2 t. 11 c.
**White Lead—**
Oporto, 6 t. 17 c.

## GOOLE.

*Week ending November 30th.*

**Alkali—**
Dunkirk, 30 dms.
Ghent, 7 cks.
**Benzol—**
Rotterdam, 92 cks.
**Chemicals** (*otherwise undescribed*)
Ghent, 2 cks.
Rotterdam, 36
**Dyestuffs** (*otherwise undescribed*)
Boulogne, 2 cs. 1 ck. 10 dms.
Ghent, 2 1
**Manure—**
Antwerp, 568 bgs.
Boulogne, 129
**Pitch—**
Antwerp, 320 t.
Dunkirk, 251

## GRIMSBY.

*Week ending December 3rd.*

**Alum—**
Barcelona, 20 cks.
**Chemicals** (*otherwise undescribed*)
Hamburg, 3 cs. 8 pkgs.
Rotterdam, 48 dms.
**Coal Products** (*otherwise undesc'd.*)
Dieppe, 117 cks. 100 pkgs.
**Dyestuffs** (*otherwise undescribed*)
Dieppe, 16 cks.

# PRICES CURRENT.

WEDNESDAY, Dec. 21st, 1892

Prepared by Higginbottom and Co., 116, Portland Street, Manchester.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids:—** | | | | |
| Acetic, 25 °/₀ and 40 °/₀ | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | 50/- | | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 1¾ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3¼ |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 0 | 11 |
| Sulphuric (fuming 50 °/₀) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11½ |
| Arsenic, white powdered | nett per ton | 12 | 10 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 1 |
| ,, ·880=28° | per lb. | 0 | 0 | 2½ |
| ,, =24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 20 | 10 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 10 | 2 | 6 |
| ,, ,, (grey) Hull | ,, | 10 | 1 | 3 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6 |
| Aniline Salt ,, | ,, | 0 | 0 | 5⅞ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 3 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes:—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8 |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 0 |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 7 |
| ,, 50/90 ,, | ,, | 0 | 1 | 4 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 6½ |
| ,, (crude 60°) | per gallon | 0 | 1 | 11 |
| Creosote (ordinary) | ,, | 0 | 0 | 1¼ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 1¾ |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 0 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 1 | 0 |
| Coke-oven Oils (crude) | ,, | 0 | 1 | 1 |
| Copper | per ton | 46 | 15 | 0 |
| ,, Sulphate | ,, | 16 | 0 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 2 | 6 |
| ,, Litharge Flake (ex ship) | ,, | 13 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, brown ,, ) | ,, | 17 | 5 | 0 |
| ,, Carbonate (white lead) pure | ,, | 20 | 0 | 0 |
| ,, *Nitrate* | ,, | 20 | 0 | 0 |
| Lime, Acetate (brown) | per ton | 6 | 5 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | 15 | 0 |
| ,, Borate | per cwt. | 2 | 12 | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 0 |
| Naphtha (Wood), Solvent | ,, | 0 | 3 | 10 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 4 | 7½ |
| **Oils:—** | | | | |
| Cotton-seed | per ton | 19 | 5 | 0 |
| Linseed | ,, | 19 | 5 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5⅛ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 7 | 6 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 10 |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 | 0 |
| Silver (metal) | per oz. | 0 | 3 | 2½ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, ,, | 5 | 2 | 6 |
| ,, ,, (Carb. Soda-ash) 48% | ,, ,, | 5 | 5 | 0 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, ,, | 5 | 15 | 0 |
| ,, ,, (Soda Crystals) | ,, ,, | 3 | 2 | 6 |
| ,, Acetate (ex-ship) | ,, | 18 | 0 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 15 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Borate (Borax) | net, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¾ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | net pr. ton (10 ton lots) | 11 | 15 | 0 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 11 | 0 | 0 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 10 | 2 | 9 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, (10 ton lots) | 9 | 0 | 0 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, (10 ton lots) | 8 | 15 | 0 |
| ,, Bicarbonate | ,, | 6 | 10 | 0 |
| ,, Hyposulphite | ,, | 7 | 10 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 9 |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¾ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 12 | 6 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7¼ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7½ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone: Best Quality (nominal) | ,, | 4 | 10 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 95 | 0 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 18 | 7 | 6 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

THE

# CHEMICAL TRADE JOURNAL

AND

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## LATE ADVERTISEMENTS.

"RAILWAY MAXIMUM RATES AND CLASSIFICATIONS," by M B. COTSWORTH. A Digest of the 33 Acts recently passed to fix the maximum rates and classification of *all* the railway companies in the United Kingdom, with tables of maximum rates worked out for all distances up to 600 miles, for every description of merchandise traffic; also the sums allowed for station and service terminals, and the rates and conditions applicable to small consignments weighing 3cwt. and under.

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## THE CHEMICAL STUDENT.

AFTER all that has been heard about technical education and the spread of elementary science during the past twelve months, one begins to think that the student of chemistry who has been made the subject of so much discussion must be a person of no mean importance.

A closer inspection, however, of what, as a general rule, the average chemical student develops into—namely, the young works chemist, or "chief assistant," in the laboratory of a public analyst, reveals an object hardly calculated to arouse in the ordinary observer any deep feelings of envy. As a rule his familiars speak of him as a "grinder."

From all accounts the ordinary works chemist certainly does have a rather lively time of it, his hours usually being as long as his remuneration is short.

The reasons why the position of the embryo chemist is so generally unsatisfactory are many, but they do not claim our attention just now further than this, that it is hardly likely that all those who seem so eager to enter the field as students of chemistry just now, will be ultimately more fortunate than their predecessors, but, on the contrary, they will most likely constitute just one more reason why the young qualified chemist cannot get his deserts.

It is only a small minority that escape from the trammels of routine, and to the majority we would offer one or two hints, which may serve to save them much disappointment in the future.

To the average students, therefore, it is that we address ourselves; and supposing such to have in their mind a dim prospect of becoming some day analysts on their own account (an idea which we have known a good many students entertain), we should advise them to dispel the thought from their minds altogether, unless they are fortunate enough to have sufficient money at their back to keep them, when of course they can afford to amuse themselves by running a laboratory.

Even then we should advise them to adopt some other profession,—there are many—in which a mistake can be more easily glossed over than is possible in the chemical profession. If they chanced, as members of the medical profession, to make an inaccurable diagnosis of a case, and finding their prescriptions did not bring about the desired results, discovered their mistake, they could cover their retreat under "complications having arisen," and start on a new tack without damaging their professional *status*. Not so the analyst. If he inadvertently lets an incorrect result pass out of his hands, he may shortly find himself confronted with his oversight in a witness box, and crushed under the weight of a heap of evidence which goes dead against him. His position then is anything but enviable, and his clients and the public are not likely to fail to observe his discomfiture.

But the majority of students are not blessed with superfluous *specie*, and it is imperative, therefore, that they should

disabuse their minds of any illusions as to the opulence of the analytical profession, as far as private enterprise is concerned. The great increase in the number of public analysts is fast destroying the prospects of those who intend to enter the profession, but are not fortunate enough to hold some public post, or to be taking over an already well established practice. The enterprising devotee of science will, if he follows his own imaginations, find in time that he has fitted himself to do the work for which his principal draws the "needy," and that is all. He will also perceive that those whose steps he thought to follow find that only the expensive and non-paying work falls to their share, the "fat" being taken by the public analysts to line their own nests, leaving their official and *bonâ-fide* work to be done by assistants.

If, being disappointed in this direction, the young disciple turns his attention to industrial chemistry, he will find a more open field, no doubt; but, having armed himself with his laboratory experience, and perhaps a degree, he must not be alarmed if he is informed that £80. a year is a good salary for a chemist, while the prospect of a possible increase to £100. should dazzle him with its brilliancy. If it doesn't, he is reminded that he should have ascertained fuller particulars before fitting himself for so rich a field of labour. Such a reminder does not afford much consolation, however, and the student, who is now hovering about the brink of the analytical, in preference to any other profession, will do well to look carefully, before he leaps into the former.

## AN OBJECT LESSON IN AGRICULTURAL EDUCATION.

THE position of the English farmer during the last few years has not been an enviable one. The depression in agriculture has persistently manifested itself, and the farmer has suffered proportionately. A prominent member of one of our Chambers of Agriculture has expressed the opinion that the depression which exists is mainly the effect of foreign competition, of continually increasing imports from abroad, of the competition of carrying companies, and improved facilities for shipment; these ever-increasing imports bringing about a lowering of the prices of home-grown produce.

It is not our intention to discuss the *pros* and *cons* of this pronouncement, since already a National Conference has been held, which ought undoubtedly to afford the most reliable information as to the reason why this depression exists, and also suggest the best means to be adopted for improving matters. But there is an observation in the opinion which we have quoted above, which sounds the key note of what is to follow. It is therein stated that *mainly* the depression was due to foreign competition. This naturally leads us to look around and see what foreign countries are doing to enable them to compete with us so successfully.

The answer to such an inquiry will, we think, be better education of those connected with the agricultural industry, and a more perfect and systematic dissemination of helpful literature.

We are quite alive to the advantages which we possess in the matter of well-endowed agricultural colleges, our Chambers of Agriculture and our Royal Agricultural Society, but apart from the two latter we are equally alive to the absolute apathy of our centres of education.

### NEED FOR BETTER INSTRUCTION IN AGRICULTURE.

Agricultural education is very much to the front just now, and especially in Lancashire. It is certainly time that something was done, as numbers of farmers have during the past year migrated south in the hopes of doing better, and, according to all accounts, their hopes have been realised.

It certainly cannot be said that there is no interest taken in the extension of the means for providing agricultural education. In addition to two well-equipped colleges, the Charity Commissioners gave in March of last year buildings to the value of £10,000 to establish an Agricultural College for Kent, Surrey, and Sussex, while later in the year a member of the firm of Armstrong, Mitchell, and Co., Newcastle, offered to give from £10,000. to £12,000. towards the extension of the Aberdeen *University, if among* other provisos a chair of agriculture was endowed.

Yet, although the *nuclei* for so many educational and experim stations exist, it is the County Councils who seem to be takin initiative in turning to account the grants recently made by Govern for the extension of agricultural education. We would not impl our existing institutions are doing nothing, but the bone of conten that the light which should be thrown on agricultural problems by institutions is hidden under a bushel, and, thus obscured, reducin practical outcome to nil.

The establishment of elementary classes all over the country m a good thing in itself, but it can hardly be productive of as much as might be done by turning the existing facilities to practical acc

Good technological teachers are scarce; those that exist shou secured and surrounded with the means of carrying out good w With the aid of the Government grants, the fees could be reduc within the reach of almost all those who possess sufficient general e tion to qualify them for studentship. Again, all cannot, and, more are not fitted to become experimental students—that is to say, stu who have fitted themselves to assist in working out problems conn with agriculture. Those who show special aptitude for this br however, can be made to perform extensive and essential experim under the control of a competent director, the outcome of which sh be made known at definite intervals for the instruction of those w lot it is merely to execute. Our colleges would thus be filled those who were being taught enough to enable them to understand apply the information which would be supplied to them in a seri bulletins after they had left the educational institution; while at institution an experimental station or department would be perpet equipped with a staff of qualified higher students who would, perfecting themselves, furnish reliable information to be published time to time. And, lastly, this information should be obtainabl nothing, or at a trifling cost by farmers, and certainly free by all who have gone through the elementary training course. At the e we quoted the remarks of one competent to speak on the matt question, and we shall yet again quote from the same source. Fo ing closely upon the former reference this statement occurs—"Ame farmers said that times had never been so prosperous with them." is the fact, what does it mean? We know that in Germany agricultural laws are helpful to the farmers, and in France only rec the Act of 1887, regarding the adulteration of manures, has been siderably modified, in order to afford more protection to the ag turalist; but have the American farmers any special advantage being instructed in and informed about geoponics in general? I see.

### THE AMERICAN METHOD.

In the United States there exists what is called a Fertilizer Co This consists of a board of directors, the state having established e mental stations at Syracuse, New York, Geneva, and elsewhere, at this Board of Control have appointed a competent staff consisting director, first assistant, chemist and three assistant chemists (near of whom are university graduates) an acting horticulturist, an a pomologist, and a stenographer.

This staff work out experiments bearing on agricultural question also assist in giving force to the law enacted by the State Sena May, 1890, for the protection and education of farmers, manufactu and purchasers of fertilizers, by analysing a vast number of comm fertilizers, samples of which are taken by agents appointed in diff parts of the State. The information thus afforded is available to all fa through the medium of a series of excellently arranged free bull in which the results obtained are first explained in detail, each ba experiments summarized, and finally these summaries reviewed, an conclusions definitely stated.

To render the information given intelligible to the average fa it is necessary to explain many matters which are of an eleme nature to the chemist, and in order to show how this has been don cannot do better than start at the outset and follow these bulletins the statement of their intentions to the fulfilment of the same.

### MANUFACTURERS AND THE LAW.

To commence, then, let us take the law itself. The object law is simply to require that the fertilizers offered for sale shall co such ingredients, and in such proportions as the manufacturer cl No standard is prescribed by the law for the composition of a mercial fertilizer. Each manufacturer makes his own standard fo brand, the guarantee analysis showing what that standard is. Th proposes simply to see that the manufacturer shall keep his up to the standard set by himself.

A more reasonable arrangement, and one which would be fa the manufacturer we think it would be difficult, if not well impossible, to find. A goodly number of manufacturers, some p ing as many as twelve different brands of manures, have sent names and samples to the various stations, thereby, as it were, p declaring their *bonâ fides*.

In accordance with the educational feature of the law, it was considered desirable to issue several bulletins, explaining in as clear a way as possible such general and special facts regarding fertilizers as farmers would be interested to know.

Hence, each bulletin consists of two quite distinct parts The first part of each treats of one or more topics of interest regarding fertilizers, each topic following the preceding systematically according to a definite plan. The second or remaining portion of each bulletin contains a tabulated statement of the analytical results obtained by the station, as the analyses are completed.

The director and the chemist of the station co-operate in the preparation of these fertilizer bulletins. The order of topics to be treated may be changed or new topics may be added; but the following outline gives an idea of the nature and scope of these bulletins.

I. Introduction.
II. Outline of the history of commercial fertilizers.
III. The principles underlying the use of fertilizers.
  1. Constituents of plants.
  2. Constituents of soils.
  3. Relations of soils and plants.
IV. Description and sources of fertilizing elements.
V. Economical purchase and rational use of some fertilizing elements.
VI. Factory and home-made fertilizers.
VII. What constitutes a good fertilizer.
VIII. Prices of raw materials.
IX. How to determine the commercial value of fertilizers.
X. Extent to which fertilizers are used.
XI. Summary.

These fertilizer bulletins are intended to explain such facts as will make farmers familiar with the different terms used to express the composition of fertilizers, and also to enable them to understand some of the more general principles involved in the use of fertilizers, together with other such information.

In order that an attempt might be made to cover all points, about which information is desired, farmers were invited and urged to send to the stationany inquiries in this line, in regard to which they desire specific information.

As each bulletin is a continuation of the preceding one, it is necessary for those interested to preserve the early issues for future reference.

These and all other bulletins issued by the station are mailed to any citizen on application.

Such are the *prolegomena*, and they give promise of producing most valuable results when the precept has passed into practice.

SAMPLING FERTILIZERS.

The directions which are given for sampling are as follows, and contain hints which apply with equal force to sampling in general, apart from their particular relation to agricultural chemistry:—

Provide a teacup, some large papers, and for each sample a glass fruit can holding about one quart, that can be tightly closed, all to be clean and dry.

Weigh separately at least three full, unbroken, average packages of the fertiliser, or, if there are more than thirty, weigh every tenth package, and enter their actual weights in a blank form for description of sample.

Open the packages that have been weighed and mix well together the contents of each down to at least half its depth, emptying out upon a clean floor, if necessary, and crushing any soft moist lumps unbroken, so that the sample shall exhibit the texture and mechanical condition of the fertilizer.

Take out five equal cupfuls from different parts of the mixed portion of each package. Pour them, fifteen in all, over one another on the paper, intermix again thoroughly, but quickly, to avoid loss or gain of moisture. Fill the glass fruit can from this mixture, enclose a plainly written copy of the printing upon the bag or package, and close tightly.

SPECIAL INSTRUCTIONS TO AGENTS.

In cases where moist articles put up in bags or common barrels have become dry on the outside, it is absolutely necessary to empty out and thoroughly mix the dry and moist portions before sampling. Also, in case of dry, coarse articles, such as ground bone, there is liable to be a separation of coarse and fine parts on handling; in such cases, the coarse and fine must be carefully mixed before sampling.

Agents must not take samples from lots of less than one ton.

In sampling fertilizers found upon farms, agents should ascertain the following facts.

1st. That the samples are not taken from stock of a past season or from stock which has been carelessly stored.

2nd. That they were received in good condition, and have since been so stored that a noticeable loss or gain of moisture has been prevented.

In sampling fertilizers found at dealers' storehouses, agents should also ascertain whether the fertilizers are of old (last season's) or of new stock. Preference should always be given to the present season's goods. Circumstances may, however, make it advisable to sample old stock; in such cases, this fact must be distinctly stated by the agent in his report to the Station's Director.

If fertilizers are found stored in piles only, agents should cause six or more bags to be filled from different portions of the piles and the samples taken in the usual manner.

FREE ANALYSES.

To insure justice to manufacturers, dealers and consumers alike, the stations make gratuitous analyses of commercial fertilizers on samples taken by the agents of the station, or on such others as are properly authenticated by the certificate of the person drawing the sample and in addition the witness of some competent person. The expense of making the analysis and the importance of the published results for good or evil to the manufacturer, require that every precaution be taken for carrying out the directions given for sampling.

*(To be continued.)*

## THE NEW PATENT OFFICE BUILDINGS.

At the present time not a little misapprehension exists with regard to the reforms which are being carried out in the constitution and the organisation of the Patent Office. According to one authority, the changes that are taking place are not likely to be either material or beneficial; according to another, the complete reorganisation of the British patent system after the American model will be the inevitable result of the work that is going on. Both of these estimates, according to the *Standard*, are doomed to disappointment. The office has no power to reduce the scale of patent taxation to the low level that prevails in the United States of America, or to introduce, *mutatis mutandis*, into this country the official preliminary examination into the novelty of inventions, which is one of the distinctive features of American patent law. On the other hand, it is equally erroneous to assume that the new Patent Office, which is now in process of construction, will be no better equipped, and no worthier of the history and the present volume of British industry, than the old one. A brief and general outline of the nature of the reforms in question will make this clear. The chief defects in the external and internal arrangements of the existing Patent Office may conveniently be summarised as follows:—It is meanly built and obscurely situated between Quality Court and Southampton Buildings. The sale department, where the Patent Office publications are kept and sold, is in Cursitor-street, at some little distance from the head office. In order to reach the library readers have to ascend a long and steep flight of stairs—a task of which old and infirm persons have often complained. The abridging of specifications is in a backward state, and the library catalogues since 1880 exist for the most part only in manuscript. Finally, there is no adequate court-room in the present Patent Office, and "oppositions" to the grant of patents or the amendment of specifications have to be heard in the Law Courts, to the great inconvenience of the Comptroller General and his assistants. All these defects will be removed by the work which is in progress. The Patent Office is being entirely pulled down, and rebuilt on a new, a larger, and a greatly improved scale. It will stand upon three sites, that of the existing Patent Office, that of the block of buildings directly behind it, and that which was formerly occupied by the *Athenæum* and *Notes and Queries* offices. There will be a public entrance to the new patent office from Southampton Buildings; the sale department will be transferred from Cursitor-street to one of the new sites, and will have a public entrance of its own. The library will be brought to the ground floor; the trade marks and designs departments will be rearranged; there will be increased facilities for communication between all parts of the office, and a Court for the hearing of "oppositions" has already been provided. It has often been suggested that the Patent Office Library is practically uncatalogued. But this statement is quite unfounded. In point of fact, there are three catalogues in the Patent Office, one of authors, a second of subjects, and a third of periodicals. All of these are complete and up to date, but the first and second since 1880 exist in manuscript volumes alone. The publication of these manuscript volumes will be undertaken at no distant date, and the catalogues of authors and subjects will in future be published, like the catalogue of periodicals, at regular intervals. The abridging of specifications also is being pushed forward as rapidly as possible. At present the abridgements from 1877 to 1883 are being prepared, under the superintendence of the Patent Office examiners, and they will probably be published next year. The work of re-editing the abridgments of specifications from 1884 up to date will then be undertaken; and when this has been done the way will be clear for any revision of the early abridgements

that may be found necessary. It is obvious that these projected reforms will make the British Patent Office as complete, homogeneous, and efficient as any of its contemporaries in the old world or in the new. But they will not exhaust their force there. It may well be doubted whether the importation into this country of the American "preliminary examination into novelty" could possibly be accomplished, even if it were (a point on which, at present, we offer no opinion) in the abstract desirable The complete abridging of the modern specifications which is now in progress would, however, facilitate the adoption of a humbler but more practicable expedient to which the Patent Office authorities would, in all likelihood, offer no opposition. The American "preliminary examination" purports to ascertain whether an invention is, or is not, absolutely novel. The British Patent Office is in a most unfavourable position for undertaking, or efficiently discharging, this difficult task. Our Patent Law dates from the beginning of the seventeenth, and not, like that of the United States, from the end of the eighteenth century; and the earlier British specifications are not abridged or indexed with anything like completeness or perfect accuracy. But when the abridging of the recent specifications is finished it will be possible, and indeed comparatively easy, for the Patent Office examiners to inform an inventor, for his own guidance, whether the subject-matter of his application is an infringement of any existing patent. This optional form of preliminary examination would increase the value of patent property in this country without involving us in the difficulties and complications which beset and attend the practice of compulsory examination, even in the United States of America.

## ROSIN OIL FROM A CHEMICAL AND PHYSICAL ASPECT.

UNTIL recently it was generally believed that the use of rosin oil was almost entirely confined to the manufacture of printing inks and cart grease and the adulteration of other and more expensive oils. Although large quantities of it were manufactured, but little found its way into the the retail market, at least under its own name. There is now, however, some probability of an increased consumption taking place owing to the rediscovery of its properties as an insulator; and it will not, therefore, be out of place to say something concerning its nature and properties, if only to dispel the vague atmosphere with which the subject has been surrounded and to show how completely any dogmatic statements that have been made, or may be made, must be modified by a consideration of the quality of the oil referred to.

In the first place rosin oil is so called because it is the heavier part of the products of the destructive distillation of rosin, which, in its turn is the residue left by distilling crude turpentine, spirits of turpentine being the volatile portion. The ordinary vitreous body, varying in colour from light yellow to almost black, known as rosin, consists of a mixture of abietic acid and abietic anhydride, together with a small quantity of sylvic acid When distilled these bodies are broken up, yielding a mixture of hydrocarbons, accompanied by a larger or smaller proportion of unchanged rosin acids and anhydride. The relative amount of these constituents is determined by the design of the stills and the manner in which the distillation is conducted. The more carefully prepared and refined the oil is, the lower is the proportion of rosin acids, and in the laboratory rosin oil may be obtained with but a few per cent. of substances other than hydrocarbons.

The specific gravity of rosin oil of commercial quality may vary from 0·98 to 1·10, while its power of rotating a beam of polarized light is similarly variable, being generally dextrorotatory, but sometimes lævorotatory or nearly absent. These facts are sufficient to indicate the variable character of commercial rosin oil, and the futility of discussing its electrical properties without defining the character of the sample used is tolerably apparent.

In the various communications which have lately been made concerning rosin oil insulation, this necessity has not been sufficiently kept in sight. The only satisfactory method for settling once for all the kind of oil best fitted for this purpose would be to examine the insulating capabilities of numerous samples, and simultaneously determine their composition by analysis. If this were done, and it were ultimately found that rosin oil could be advantageously used as some of its advocates appear to think, there would be afterward no difficulty in obtaining supplies of precisely the same quality as those which have been found efficient. The maker would be given a definite standard to work to, and could, by the aid of his chemist, match that standard as nearly as would be necessary.

In dealing with the rosin oil, one of the most noteworthy qualities that are apparent on inspection is its great viscidity. It is to this, and to its immiscibility with water, that its applicability for the purposes of insulation is chiefly due. It is, therefore, plain that in addition to a *purely chemical* examination, the determination of the important *physical property of viscosity would have to* be undertaken. Thanks to *advances that have been made in the methods* of examining lubricating oils, there is no difficulty in effecting this. Besides determining the viscosity at ordinary temperatures, it would be very desirable to do so at higher temperatures, as it by no means follows that oils of the same viscosity at any given temperature have the same co-efficient of decrease as the temperature is raised There is a further point which seems to have been also overlooked. Rosin oil when exposed to air undergoes change How noteworthy that change may be has been opportunely illustrated by some figures given in a paper by Mr. F. H. Leeds, read before the Society of Chemical Industry. The results of three of the samples examined are given below:—

| | Original oil. | | Oil after exposure to air. | |
|---|---|---|---|---|
| No. of sample. | Rosin acids. | Hydro-carbons. | Rosin acids. | Hydro-carbons. |
| A | 31·07 | 68 93 | 24·90 | 75·10 |
| B | 22·20 | 77·80 | 16·09 | 83·91 |
| C | 9·72 | 90·28 | 4·29 | 95·79 |

The results show that a considerable amount of alteration has taken place. There is an apparent decrease under the column headed rosin acids (which strictly means total saponifiable matter, including probably anhydrides and esters) and an increase under the head of hydrocarbons. It is unlikely, on pure chemical grounds, that a conversion of the former into the latter takes place. Probably the explanation of the change is to be sought in the volatilization of the lighter acid constituents, and the consequent enrichment of the mass in heavy non-volatile hydrocarbons. In the paper in which these results appear, other differences are recorded and discussed, but, being at present still unsettled, do not immediately concern us. One deduction is, however, plain, namely that an oil may undergo profound alteration by exposure, and may well alter in character to such an extent as to become more or less useful in tangible degree. It can, therefore, never be safe to assume that, because a specimen of oil has at one time given certain results, it will necessarily possess identical properties after the lapse of time, particularly if the conditions under which it has been kept have involved its exposure to the atmosphere. This again opens up a field for investigation, in that not only do all kinds of rosin oil change, but that the tendency of oils of different qualities to alter by exposure varies greatly. It is probable that samples consisting almost wholly of hydrocarbons would prove the most resistant, and, if found to be also high in insulating power, would be preferable on that account. Direct experiment is, however, much needed.

## UTILISING WASTE PRODUCTS OF PETROLEUM DISTILLATION.

IN the distillation of petroleum or hydrocarbon oils for the purpose of manufacturing illuminating gas there remains a residue after the lighter portions are distilled away. This residue consists of water and heavy oil, which differs considerably from the tar which forms the residue of coal distillation. The characteristic of this petroleum residue is a tough, elastic, oily consistency, which causes it to envelop and cover small particles or globules of the water with which it is mixed with such persistency that it is impossible to separate the two by any ordinary known process. At the works of the Pacific Gas Improvement Company, at North Beach, in New York, this residue has been allowed to run to waste, since it was not considered of any value for fuel or other purposes. J. P. Engle, of the firm of Engle and Son, dealers in lumber and mouldings, whose shop is near the gas works, now uses this material for fuel under the boiler in his shop, having devised and patented a means to effect a separation of the waste products and a way to recover them.

He employs an apparatus in which two surfaces are constantly rubbed together while the mixture is fed between them, so that the mechanical rubbing acts to separate the heavy oil from the water and allow the latter to flow off separately from it. When this separation has once been made, the oil will remain separate from the water, and, being slightly heavier, will gradually sink to the bottom, so that the water may be drawn off from the top nearly or quite clear of the watery mixture The oil thus separated may be used directly as a fuel or mixed with any dry refuse material which will absorb it and form a permanent fuel for future use, or it may be employed for any other purpose for which it is fit. In order to make a complete separation of the water from the oil, Mr. Engle employs any waste absorbent material, such as sawdust, shavings, cotton and woollen waste, rice husks, etc. A very simple apparatus is employed to complete the separation after the substances have passed through the mechanical rubbing apparatus The peculiar property of the petroleum compound is such that the heavier portion is more readily absorbed by the dry material than the water. The consequence is that the oil and spirit will be absorbed first, and the water will remain unabsorbed and flow out immediately through a waste-pipe, and the mixture thus formed is immediately ready for the grate. Mr. Engle says that it will then be found to produce a fuel equal in heat and endurance with the usual run of steam coal.

## METALLIC CHROMIUM BY ELECTROLYSIS.

THE so-called metallic chromium hitherto obtained, has consisted chiefly of nearly pure carburet of chromium, and has been merely a laboratory curiosity. According to the statement of E. Placet in the *Comptes Rendus*, he has succeeded in preparing, however, pure chromium in the metallic state by electrolysis, a specimen of which weighing over a kilogramme, he presented to the Académie.

The process which he employed was as follows:

An aqueous solution of chrome-alum is prepared, to which is added an alkaline sulphate and a little sulphuric acid. This solution is then electrolysed. At the negative pole a beautifully brilliant deposit is formed on the surface of the electrode, this deposit consisting of pure chromium. The metal is very hard, and is of a beautiful bluey-white colour It resists atmospheric action perfectly, and is only attacked by concentrated sulphuric, or nitric acid, and a concentrated solution of potash. When the electrolytic deposit takes place under certain conditions, it is even possible to obtain arrangements of chromium crystals, which recall the branches of fir trees. This metal, which can now be prepared on a thoroughly commercial scale, furnishes numerous alloys, which are being investigated.

M. Placet has also succeeded in electro-plating brass, copper, and iron with chromium, an adherent deposit resembling oxidized silver in appearance being obtained.

## SOAPS AND LUBRICANTS USED IN SCOURING WOOL.

By Dr. A. Lehne.

IN the course of a paper on the above-named subject, which was read at the German Woollen Manufacturers' Convention, the author said: Animal hair belongs to the most durable of organic substances. Its resistance to air and humidity is little inferior to that of bone, which is composed of an organic phosphate of lime. Hair contains about 4 per cent. of its weight of fat, which surrounds it as a protecting film, and is the agent to which its durability is principally due. A simple experiment will confirm this assertion. If the fat is taken away from the wool, for instance, with ether, which is an excellent solvent for fat, the wool will be destroyed in a short time under the co-operation of air and humidity. Wool owes not only its great durability, but also its suppleness and lustre to its percentage of fat.

Raw wool, as it comes from the back of the sheep, contains, as is well known, a large quantity of yolk, which is a mixture of cholesterin, cholesterin combinations, sebate of potash, potash and dust, dirt and other impurities. The yolk is removed by washing with water and alkaline fluids, and if this manipulation is not performed with great care, the wool also loses a part of the fat required for retaining its suppleness. Still worse is long-continued boiling of the wool in the mordanting liquor, whether of chromate of potash, sulphate of copper, sulphate of iron, &c., and the same is true of a continued violent boiling in the dye bath, The wool becomes harsh thereby, void of lustre, is difficult to card, and makes an inferior yarn.

The carding of wool is for the purpose of separating the single fibres as much as possible, and to bring them into a parallel position, which is necessary, so as to spin them into a thread. This treatment presupposes that the adhesion of the card to the wool fibres is reduced to its utmost extent, so that the wool does not stick to the wires. The cohesion of lubricated wool fibres greatly surpasses their adhesion to the steel wires of the card. For white and vat blue wool, according to its condition, from 14 to 16 per cent. of the weight of the dry wool of a good lubricant is required. About 10 per cent. may be accepted as the right quantity for wool of other colours. It is evident that the most of the lubricant, after it has done its duty in the spinning process, must subsequently be removed again from the wool in a simple and uninjurious manner.

In spite of repeated propositions to replace the facts by the much cheaper mineral oils, glycerine, solution of chloride of magnesium or other substances, the use of the fats, at least for fine wools, has in no wise diminished. None of these substitutes possesses all the advantages of the fats, while many cause great mischief.

All vegetable and animal fats are very nearly related one to the other. They are all glycerides, that is, combinations of the fatty acids, with glycerine. When a fat is heated with a solution of caustic soda, it is decomposed into a soluble sebate of soda, that is, soap and glycerine. On the other hand, fats may be reconverted artificially from glycerine and fatty acids. Ordinary soda, that is, carbonate of soda, only produces an emulsion with the fats, which remain unaltered, and are present in an extremely fine divided condition in the soda solution. When, for instance, wool is lubricated with olive oil, and then treated with soda solution of 2° B., an emulsion is produced, but the olive oil is not, as is often erroneously believed, really saponified. The emulsion of the oil, however, can be removed almost completely out of the cloth in the scouring operation, as a fine, durable emulsion behaves very much like a solution.

The fats are at ordinary temperature, say from 60° to 70° F., of a very varying consistency. The fluidity of a lubricant, however, stands in direct relation to the suppleness which it imparts to the wool fibre, and, for this reason, a pure olive oil is preferable to cottonseed oil.

Another very important characteristic of the fats is their behaviour toward the air. As regards this point, the same demand must be made of a good wool lubricant that is made of a machine oil—namely, its power to resist the action of the air. It is well known that the action of the air upon oxidizable substances increases in intensity with the fineness of their division, and this takes place in a high degree with lubricated wool.

### FAT OILS.

The fat oils are classified into drying oils, such as linseed, poppy, &c., and non-drying such as cottonseed, rapeseed, and others. Recent investigations have shown that this classification cannot be carried out strictly. Livache exposed weighed quantities of different oils under equal conditions for two years to the action of the air. After a year rape oil had increased in weight 5·8 per cent, and it congealed and stuck to the fingers. Peanut oil increased 5·7 per cent. and became thick. Olive oil increased 5·3 per cent. and thickened in like manner, while cottonseed oil increased 6·3 per cent. and became dry.

Rape oil, hitherto considered a non-drying oil, had become dry in a year This drying is more quickly noticeable when the oils are distributed upon the wood, and especially when the action of the air is augmented by heat.

In most intimate connection with the drying of the oil, which phenomenon is to be ascribed to the absorption of oxygen, stands the dreaded spontaneous combustion of the material lubricated with them. Tatlock made numerous experiments on this point, and concluded that the required increase of temperature is caused by the absorption of oxygen by the oils, which increases oxidation, and this in turn causes an increase in heat until the degree of self-ignition of lubricated material is reached To prevent the self-ignition of the lubricated wool or yarn, the first great care is to store them in a cool place, not packed too tightly; and, second, that they are lubricated with pure olive oil or oleine, avoiding, at the same time, too much water.

### MINERAL OILS.

It is remarkable that the views on the use of mineral oils for lubricating wool are still divided. Mineral oils, both in their composition and chemical behaviour, have no resemblance whatever to fat oils. They are not like the latter, glycerides of fatty acids, but so-called hydrocarbons, which, according to their names, only contain hydrogen and carbon, while the fats, besides these two elements, also contain oxygen. Mineral oils can form no soaps, that is, no soluble combinations with potash or soda. They are insoluble in cold as well as in boiling potash or soda lye. When a mixture of five grams. olive oil and five grams. mineral oil is boiled for some time with soda lye, and the product is then dried and extracted with ether, the same amount of mineral oil originally used is obtained unaltered after the dissipation of the ether, while the soda soap formed from the olive oil is not dissolved by the ether. It is therefore out of the question to speak of dissolving the mineral oil, or of saponifying it by alkalies. And still there are well authenticated cases where wool lubricated with mineral oil was almost completely freed from it again. But this is not based upon the solution, but upon other property of the mineral oils. The results of exhaustive inquiries into the subject were made and published two years ago by A. Scheurer.

Cotton, as is well known, must be scoured before bleaching. Beside the natural fat contained in the fibre, A. Scheurer also tested the fats used in cotton spinning and weaving in regard to their saponification. He found that a mixture of equal parts of olive oil and mineral oil can readily and thoroughly be removed. The olive oil is saponified while the mineral oil is removed, together with the soap, in the form of an emulsion. An actual saponification or a chemical alteration of the mineral oil does not take place.

I have lubricated wool with 12 per cent. mineral oil, carded it by hand, thoroughly fulled it with soap and soda solution, then washed it well with clean water, dried it and examined it for mineral oil. Similar experiments were also made with resin oil and oleine. The results showed, that of the mineral oil the sixth part, of resin oil the seventh part, and of oleine only the thirty-second part of the original quantity used remained in the wool. The probability is, therefore, very great that some of the mineral or resin oil alway remains in the wool, thereby causing great mischief in the dye house and taking lustre and feel from the cloth.

Whether a pure oleine or olive oil is preferred for lubricating, it will be advantageous under all circumstances if the air or the fluids which come into contact with the lubricated wool are not less than 60° F. For instance, when pieces of cloth, after fulling, have been kept in a

cold room, the scouring or washing of the fats and other impurities takes place with far greater difficulty than when the congealing of the dirt has been prevented. Care must also be taken not to have the wash water too cold.

To reiterate the demands made of a good wool lubricant, there should be first, a complete and easy saponification; second, fluidity at 50° F.; third, the capacity of forming fine emulsions with soda and soap solution; and fourth, the absence of mineral acid, which in time destroys belts, leather and cards.

(*To be continued.*)

# Paper Makers' Column.

## "ASBESTINE."

THE loadings, by which we mean those substances employed for increasing the weight or density of paper, and imparting certain characteristics to it, are diverse in their properties. The greater number of them lay claim to special characteristics in themselves, and naturally enough, when used, exert a corresponding influence on the paper produced. Thus, *China clay*, the most universally used loading in the paper industry in England, is characterised by its soft and soapy nature, and imparts these properties to the paper in a greater or less degree in accordance with the proportion used. Papers highly charged with it are soft and absorbent, hence this loading has been found to be specially adapted for producing type printed papers. The ink on such papers is rapidly absorbed and dries almost immediately, the importance of which, in these days of quick running printing machines, cannot be over-estimated. Were it otherwise, the printed page would be badly smeared. Another peculiarity of this loading, second to its soft and soapy nature, is its adhesive properties. Notwithstanding China clay is always in a very fine state of division, and is so thoroughly miscible with water that it subsides only after long standing, it adheres with ready tenacity to the fibres forming the sheet of paper. This is particularly observed after the sheet of paper has been dried; and is, no doubt, due to the fact that the clay does not readily loose its water of combination, the presence of which maintains its asborbing power. When papers highly charged with China clay are damped or wetted with water for the printing machine, the clammy nature of the loading causes it to adhere firmly to the fibres, and there is little dust formed to which the printer so strenuously objects because it stops up the type.

Indeed, the chief essential properties of a good loading consists in (1) its degree of fineness; (2) its flocculent nature when mixed with water; and (3) its power to adhere firmly to the fibre. It is obvious that these three properties are dependent, in a measure, upon one another.

Asbestine, of which we wish to speak more particularly in this article, has been but recently offered to paper makers as a loading material, as many of our readers are aware it is a species of asbestos rock found in extensive deposits in Austria and in other parts of Europe. In Austria it occurs in large quantities of more or less purity in the Carpathian Mountains, and is mined along with the mineral asbestos with which, as the name implies, it is very closely allied in composition and nature In fact the difference in composition is so slight that it may be considered as substantially the same mineral, existing, however, in a different form. The lumps from the mine are selected as to colour, etc., the crystalline, somewhat transparent, and not too deeply coloured pieces being laid aside and ground to an impalpable powder. In this state it presents a very different appearance to what it was in the lump. It grinds to a pure white powder, the combined effect of its original peculiar hue and its now very fine state of division.

Under the microscope this powder presents a different appearance to China clay. It is more crystalline, is heavier, its specific gravity being greater, but is opaque. It does not, however, appear to be so highly fibrous as it claims to be. Of its adhesive properties, it is somewhat difficult to judge, but owing to the ragged nature of the surfaces of the particles, it may be accepted that it possesses this in a fair degree

Asbestine is perfectly anhydrous, possessing no water of combination, and only minute quantities of hygroscopic water. In this respect it differs widely from China clay, as mentioned above, and, therefore, in those papers highly charged with it, unless means are adopted to thoroughly incorporate it within the texture of the web, it tends to fly off in the form of dust, while the paper is passing through the printing machine. The absence of hygroscopic water has, however, certain advantages, principally in the direction of the yield. In this matter, it is a more economical loading than either China clay or pearl hardening, both of which contain varying quantities of hygroscopic moisture. Unlike the former of these, however, it does not become so plastic when wetted with water, being of a more granular nature. In this respect, a good sample lies midway between pearl hardening and China clay. The yield from asbestine is more uniform than is the case with either of these other loadings, mainly because it is comparatively much drier in the state it is delivered to the mills, and being, as a general rule, purer, can be used direct in the beater without preliminary preparation. The ragged surfaces of the particles cause it to cling tenaciously to the fibre, a circumstance greatly assisted by the glutinising nature of the resin size. As a general rule a yield of from 70 to 85% is obtained with ordinary care in papers containing average quantities of mineral matter.

In America, asbestine is extensively used, as it is found in large quantities in that country. It is so perfectly white in appearance that it communicates a high degree of whiteness to the pulp with which it is mixed. This is due simply to its purity of colour, a property common to other loadings of equal whiteness, *e.g.*, pearl hardening. Papers containing it, when subjected to great pressure or to friction, are highly glazed, and, owing to its non-hydroscopic properties, the gloss on the paper is more lasting than with many other loadings. The highly-glazed surface of many printed journals in the United States is obtained by the use of asbestine or closely allied substances. In point of price it is, weight for weight, dearer than China clay, but it yields better and produces, under special treatment, effects in colour and finish which, in many instances, compensates for its relatively higher value.

## DETERMINATION OF SODIUM SULPHIDE HYPO-SULPHITES AND SULPHITES IN GLYCERINE.

By C. Ferrier.

THE glycerine of the soap industry, which is obtained by the saponification of oil, etc., by means of alkali, still contains, when it has been concentrated to a strength of 35—36° Beaumé 8–10% of chlorides or sulphates, which diminish its value very considerably. In the presence of alkaline sulphides, hypo-sulphites, and sulphites, however, this crude glycerine becomes almost useless. It is, therefore, a matter of the greatest importance for the soap manufacturer to determine the amount of these impurities, and especially to remove them from the glycerine, or at least to convert them into less harmful compounds.

In order to carry out the analysis, it is convenient to dilute 50 grms. of the crude concentrated glycerine with ten times its weight of boiled water, the whole being, if necessary, neutralised with pure hydrochloric acid, and made up with water to 500 cbc. This solution is then treated at 60—70°C. with 2—3% of yellow prussiate residues, which have been washed with dilute nitric acid, then with water, dried, and finally calcined in closed crucibles at a dull red heat. If this residue is not available, blood charcoal may be used; or, if this is also not at hand, animal charcoal. The latter, however, has a less satisfactory action than the other two varieties. The glycerine solution is then filtered, and is employed for the following determinations.

The reagents to be used are.—(1.) A $\frac{1}{10}$ normal iodine solution (12·7 grms. per litre). (2.) A solution of lead nitrate, which is obtained by dissolving 13·3 grms. of pure dry lead carbonate in dilute nitric acid, neutralising the excess of acid by sodium carbonate, and making up with water to one litre. (3.) An alkaline lead solution, which is made by dissolving another quantity of 13 3 grms. of lead carbonate in nitric acid, and then adding excess of pure concentrated caustic potash solution until the precipitate of lead hydroxide is re-dissolved, the solution being then diluted to one litre with water, and finally filtered. 1 cbc. of each of the lead solutions contains 0·0133 grams Pb., corresponding to 0·0039 grams $Na_2S$. Before proceeding to a quantitative analysis of the sulphur compounds in glycerine, it is well to make a few qualitative experiments.

To test for alkaline sulphides, a drop of the glycerine solution is brought on to a piece of paper saturated with lead nitrate. If no dark yellow spot is produced, the glycerine contains less than $\frac{1}{10000}$ of sulphide. To detect a few hundred thousandths of sulphide, a little of the glycerine solution is placed in a small flask, four or five drops of pure hydrochloric acid added as well as a few grains of sodium bicarbonate, the liquid heated carefully to boiling, and a paper moistened with lead nitrate held over the neck of the flask. A yellow stain is produced with less than $\frac{1}{100000}$ of the sulphide.

Hyposulphites and sulphites are detected by treating a sample of the solution with a few cubic centimetres of a solution of barium chloride and filtering, a residue containing carbonate, sulphate, and sulphite being left on the paper. As soon as the liquid has been obtained clear, if necessary by repeated filtrations, two or three drops of hydrochloric acid and the same quantity potassium permanganate are added. If the glycerine contains even less than $\frac{1}{10000}$ hyposulphite, a distinct turbidity is produced. The detection of the sulphites is effected by washing the residue on the filter freely with boiling water, stirring it up with a little water, and adding to this mixture a little starch solution and a few drops of iodine solution. In the presence of sulphites, the blue coloration disappears with more or less rapidity, whilst in the

absence of sulphites it is permanent. Sulphides are quantitatively determined by means of the standard lead nitrate solution, which is added with continual stirring to 25 cbc. of the glycerine solution, the precipitate produced at once settling out. After each addition a drop of the clear liquid is brought on to a strip of paper soaked in lead nitrate solution, the titration being continued until a yellow stain is no longer produced in this way

In order to determine the hyposulphite and sulphite, the liquid which has been used for the above titration is filtered from the precipitated lead sulphide, and a little sodium bicarbonate and a few drops of starch solution added. The liquid is then titrated with the standard iodine solution until a permanent blue coloration is produced. In this way the amount of sulphites, hyposulphites, and other reducing substances present is ascertained. In a second quantity of 25 cbc, of glycerine solution the sulphide is precipitated by lead nitrate in the way already described, the liquid filtered and the filtrate treated with three or four cbc. of a concentrated solution of strontium chloride. Carbonates, sulphates, and sulphites are precipitated, and after standing for ten minutes the solution is filtered, and the hyposulphites, which alone remain in solution, determined by means of the iodine solution. The difference between the first and the second iodine titration gives the amount of the sulphurous acid or sulphites. If the glycerine is free from other reducing substances, such as cyanides, nitrites, and ferrous salts, the testing would be at an end. Since, however, it is always possible that other bodies which act upon iodine may be present, a third titration must be made. The sulphides in 25 cbc. of the glycerine solution are precipitated by the exact amount of the alkaline lead solution, filtered. and the clear filtrate heated after the addition of 2 cbc. of pure hydrochloric acid on the water bath to 100°C, and then allowed to cool. The hyposulphites are thus destroyed with separation of sulphur. The liquor is then made neutral by the addition of sodium carbonate, and a few cbc. of strontium chloride solution added to remove the sulphites, the whole allowed to stand for a quarter of an hour, filtered and finally titrated with iodine. The difference between the third and the second results gives the amount of hyposulphites.

The sulphur compounds may be removed from crude glycerine on the large scale by treating it with ferrous sulphate in excess. The iron is then precipitated by a small amount of lime in the hot solution, and the clear liquid decanted. Since glycerine dissolves a considerable amount of lime, the latter is thrown down with sodium carbonate, the whole neutralised with hydrochloric acid, and the glycerine then concentrated to the desired extent.

The hyposulphites and sulphites in glycerine can be decomposed by the use of various reagents. The best method to adopt is, in the opinion of the author, says the *Chemiker Zeitung*, to treat the liquid with the exact amount of bleaching powder required for the decomposition of the sulphur compounds.

An excess of bleaching powder is to be avoided, since the chlorine attacks the glycerine. The amount of the sulphur compounds present is first determined, and then the strength of the bleaching liquor; the amount which must be added in order to exactly convert all the hyposulphite and sulphite into sulphate is then calculated. During the addition of the bleaching powder, the mass must be well stirred and the temperature maintained at 70—80°C.

## NOTICES.

### LONDON AGENTS.

Booksellers and Newsagents may now obtain supplies of

THE CHEMICAL TRADE JOURNAL
From
MR. JOHN HEYWOOD,
2, Amen Corner,
Paternoster Row, E.C.,

On usual trade terms.

### FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed* MONEY ORDER is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country

## Correspondence.

**** We do not hold ourselves responsible for the opinions extressed b our correspondents.*

### *ANSWERS TO CORRESPONDENTS.*

A. H.—Bill safely to hand for which we thank you.

R. P. Co.—Your proof to hand safely.

C. T. K.—We shall be pleased to accede to your proposal on the conditions we stated in ours of the 23rd.

G. R.—We have done as you requested.

G. H. J.—Before February we expect, though it is impossible to name a date at present.

INQUIRER.—Yes, it originated with a New York firm. It is hardly new unless anything which has been known about three years is new.

## Trade Notes.

REDUCED WAGES IN THE IRON TRADE.—A notice posted at the works of the Clydesdale Iron and Steel Company intimates a reduction of 5 per cent., in the wages of the men employed there. The existing contracts with tonnage men will terminate on the 27th instant.

THREATENED STRIKE OF GLASS WORKERS AT LEEDS.—The employés of the glass works in the Leeds district have received notice of a reduction of 3s. per week, owing to the dulness of trade. The men have determined to resist the reduction.

MESSRS HARPERS, LIMITED.—In the Court of Session recently, the First Division upheld the decision of Lord Low interdicting Barry, Henry and Co., Limited, from printing and circulating a catalogue which was an invasion of the copyright of Messrs. Harpers, Limited, of Aberdeen.

POLISHING PASTE.—A new paste for polishing metal, painted and varnished work, has been patented recently by Mr. J. Jordan, it consists of carbonate of soda dissolved in water, to which oxalic acid and clarified tallow or other fat are added. The mixture is passed through a sieve and incorporated with pulverised and levigated chalk or whitening. The paste is then allowed to set in moulds.

A NEW CHAMBER OF ARBITRATION.—A Chamber of Arbitratio n on the lines of the London Chamber is about to be constituted for Sheffield. The Master Butler, Mr. J. F. Atkinson, took the initiative by inviting the Town Council, the Chamber of Commerce, and the Cutlers' Company to elect representatives. Six gentlemen have been appointed by each of these bodies, and they are to meet to discuss the matter at an early date.

NEW SCIENCE SCHOLARSHIPS AT OWENS COLLEGE.—The Council of Owens College has accepted the offer of an entrance scholarship in science, especially in chemistry, of the value of £30. per annum for three years, founded by Sir Ughtred J. Kay-Shuttleworth, Bart., M.P., in commemoration of the services rendered by his father, the late Sir J. P. Kay-Shuttleworth, to scientific and especially chemical instruction in connection with Sedberg, Giggleswick, and Burnley Schools. The Kay-Shuttleworth (Sir James Philips) Scholarship will be triennially offered for competition among the pupils, in the first instance, of these schools.

STOPPAGE OF ALKALI WORKS.—The United Alkali Company have issued orders to the managers of their numerous works that on Friday Dec. 30th the plant for the manufacture of caustic soda must be stopped for an indefinite period. In Widnes, the chief centre of the alkali manufacture, this will mean the stoppage of two works and the partial stoppage of others. Over 1,000 men will be thrown out of employment. The period of stoppage is understood to certainly extend to six weeks. The large accumulations of stock is the reason for the suspension of the manufacture, paper-makers and soap-makers having for some months used carbonated ash instead of caustic in their processes.

MARGARINE FACTORIES IN THIS COUNTRY.—The House of Commons insists upon having the name and the postal address of every margarine maker. There seem to be twenty-three of them in the United Kingdom, eleven in England, ten in Scotland, and two in Ireland. Four factories exist in London; three—one in Chester, another in Cumberland, and a third in Staffordshire—are within the jurisdiction of English county councils; and four—three of them at Birkenhead—are subject to the town councils. The Scotch factories are scattered Both the Irish works are in Limerick. It is evident that margarine is made to no very great extent in England. Most of it is foreign: and foreign margarine seems to be easily sold as pure butter and is sold as such in the poorer districts of most large towns.

Method for Brazing Brass to Copper.—The following is given by an exchange as a good formula for brazing brass to copper. The solder which unites the two metals must be soft brass, which will melt much easier than the brass which is to be joined to the copper, otherwise the work would melt at the same time as the solder. The edges of the work must be carefully cleaned, and then the parts brought together in their proper place and secured with iron wire. The flux to be used is borax, rubbed up in water until it is like a thick cream. The solder, which may be in the form of beads, strips or wire, is next distributed along the joint. The amount of heat and the method of applying it depend entirely upon the size of the work to be done. If the work is small the blow pipe is far the best, because if the heat is too great there is danger that the brass part of the work will be melted. The heat is to be applied until the solder melts. As soon as the solder melts or "flushes," the work should be struck, so as to jar it just enough to make the solder flow into the joint. To find out whether the solder is soft enough for the work, a piece may be laid upon a bit of brass and put it in the fire. If the solder melts considerably sooner than the brass it will be safe to use it for the work.

# Market Reports.

## THE METAL MARKETS.

LONDON, Wednesday.—Pig iron quiet. Scotch warrants closed at 41s. 7d. cash. Middlesbrough 37s. 6d. cash, and Hematite 45s. 9d. cash. Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s closed at £46. 12s. 6d. cash, and £47. 1s. 3d. to £47. 8s. 9d., three months. Tin dull. Straits closed at £91. 10s. to £92 cash, and £90. 17s. 6d. to £91. 7s. 6d three months. Australian, £92 5s. cash. English ingots, £95. to £95. 10s Lead steady: Spanish, £9. 18s. 9d. to £10. English £10 2s 6d. to £10 5s. Silesian spelter: Ordinary, £18 7s. 6d. Quicksilver: First hands, £6. 2s., second hands, £6. 1s. 6d. *Copper shares* firm; Cape, 1⅝ to 1¾. Copiapo, 2¼ to 2⅜. Libiola 3⅛ to 3⅜. Mason and Barry, 2 15/16 to 3 1/16; Rio Tinto, 16 1/16 to 16 9/16; Tharsis, 4⅝ to 4¾; Namaqua, ¾ to ⅞; Panulcillo ¼ to ⅜.

WOLVERHAMPTON, Wednesday.—The market has been of a holiday sort, works being shut until next week. Prices are, however, maintained by the stoppage of pig supplies from Lincolnshire and the probility of a continuance of the dispute. Lincolnshire pigs 48s 6d., Northampton 43s. to 44s, Derbyshire 44s. to 45s, Staffordshire pigs 60s. best and 36s. common. A report prevails that at the January quarterly meetings marked bars will probably be reduced 10s. per ton, present prices £8., medium bars £6. 10s., common £5 10. Sheets, singles £6. 15s. upwards, doubles £7. 5s. average.

GLASGOW, Wednesday.—Market steady, with small business. Scotch done at 41s. 7d. cash, also at 41s. 8½d. one month; closing with buyers at 41s. 6½d. cash, and 41s. 8½d. one month; sellers ask 1d. more. Middlesbrough done at 37s. 6d. cash; closing with buyers at 37s. 6d. cash, sellers ask 37s, 9d. Hematite closes with buyers at 45s. 9d. cash; sellers ask 46s.

## LIVERPOOL OIL AND COLOUR MARKET.

Wednesday.

OILS.—Palm oil is rather firmer if anything, and sales have been made at £24. per ton. Soft oils £22. both transit. Olive continues to rule steady, but owing to the closing of the market for the Christmas holidays there has been little business doing in this or any other seed oil. Linseed continues firm with a tendency to increase in value. Cottonseed: Liverpool refined is firm, prices ranging from 19s. 6d. to 20s. per cwt. Castor oil is rather quiet but values for good seconds Calcutta and first pressure French are both unaltered. Tallow is inclined to be firm but the business doing has been very small. Resin common is steady at 3s 10½d. per cwt., the demand is quiet. Spirits of turpentine vary from 22s. 6d. to 22s. 9d. per cwt., but are rather uncertain. Petroleum has a good consumptive demand at recent quotations.

COLOURS.—No change to report. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s., medium, 50s., best, 60s. Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet. Devonshire, 50s. to 55s. White lead, red lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 10s. 6d.; black, 9s. 9d.; blue, 6s. 6d. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £22. to £23.

## TYNE CHEMICAL REPORT.

Tuesday.

There is no alteration of moment in the chemical trade, business for prompt is quiet, though there is rather more enquiry for forward delivery. Bleach continues in strong demand at £7. 15s. per ton, net, softwoods. Caustic soda and crystals dull and prices for these products fluctuates with place of consumption. Quotations for January may be stated as follows:

Bleaching powder, softs, £7. 15s. per ton nett; hards, £8. per ton; caustic soda, 76/77%, £11. 5s. per ton, 70%, £10. per ton; recovered sulphur, 2 cwt. bags, £4. 12s. 6d. per ton; soda ash, 48%, £4. 17s. per ton, 52%, £5. 5s. per ton, 56%, £5. 13s. per ton; alkali, 36%, £5. per ton; white alkali, 48%, £6. per ton, 50%, £6. 5s. per ton, 52%, £6. 10s. per ton; hyposulphite of soda, in 5-7 cwt. casks, £7. per ton, ditto, in 1 cwt. kegs, £7. 15s. per ton; silicate of soda, 75° Tw., £3. per ton, 100° Tw., £3. 17s. 6d. per ton, 140° Tw., £4. 5s. per ton; soda crystals, in casks, £2. 12s. 6d. per ton gross weight, in 2 cwt. bags, £2. 12s. 6d. per ton nett weight; chlorate of potash, 9d. per lb. less 6%; pearl hardening, £3. per ton nett; pure white sulphate of alumina, in casks, £4. 5s. per ton; blanc fixe, £7. 10s. per ton; chloride of barium, £7. 15s. per ton; carbonate of alumina, £28. 15s. per ton; aluminate of soda, £33. 15s per ton; hydrate of barium, £10. per ton.

South Durham salt unaltered at 10s. 1d. per ton f.o.b. Tees.

Coals: The demand is good for the season. Best Northumberland steam, 9s. per ton to 9s. 3d. per ton; small steam, easy, at 3s. 6d to 3s. 9d. per ton; gas coals firm and shipping largely, 7s. 6d. to 8s 6d. per ton; manufacturing coal, dull, with slow demand owing to many works on the Tyne closing on account of the holidays. Coke, steady, price unaltered.

## REPORT ON MANURE MATERIAL.

During the week the market has been of a holiday character, and prices have not materially varied from those last reported.

Sellers of 75/80 % Florida phosphate rock seem somewhat firmer, and less inclined to sell far ahead. There are still sellers at 8d. per unit, in cargoes c.i.f. to United Kingdom for prompt or early shipment, but this is rather above buyers ideas, and 7¾d. is probably nearest value. Hot-air dried South Carolina rock offers at 6¼d. per unit in cargoes for shipment, and 6½d. would probably be business for Peace River. River plate bone ash continues to be difficult to sell, and £2 17s. 6d. per ton on 70% nett Hamburgh. terms, would hardly be obtainable.

There are sellers of River Plate cargoes of bones at £4. 2s. 6d., delivered United Kingdom, but the price is hardly obtainable. Crushed Kurrachee bones offer rather freely at £4 per ton, and something less than this has been taken delivered ex quay Liverpool. Ordinary quality of crushed Bombays would hardly fetch over £3. 15s. Bombay bone meal has been selling on spot at £4. per ton, ex quay, but for shipment £4. 2s. 6d. is required. Charring bones continue to be in request at Liverpool, and £4. 7s. 6d. for good, clean, dry bones would readily be obtainable.

Nitrate of soda is still quiet in all positions, but prices are steady. On spot 8s 10½d. is lowest for inferior test, and 9s. to 9s. 1½d. for good to refined quality. Due cargoes are worth about 8s. 11¼d. for ordinary test. September shipments may be quoted at about 9s. 1½d., and October-November at 9s. 3d. to 9s 4½d. per cwt, according to size and test.

The better demand for fine home prepared dried blood, for export, continues, and for high test, in double bags, f.o.b. Liverpool, 10s. 3d. per unit would have to be paid. The position of ordinary quality remains without much alteration. There is no River Plate offering in first hands.

## MISCELLANEOUS CHEMICAL MARKET.

There is a fair demand for all products of the alkali trade. The curtailment of production will shortly reduce stocks of alkali at makers' works. Quotations now ruling for caustic soda are those which have for some time past been quoted for 1893 delivery, viz.:—F.o.b. Tyne, 77%, £11. 5s.: f.o.b. Liverpool, 74%, £10. 15s.; 70%, £9. 15s.;

60%, £8. 15s.; cream, 60%, £8. 10s., 10 ton lots and upwards. Soda ash in all qualities of Leblanc make continue steady in price at 1¼d. to 1 5/16d. per degree, f.o.b Alkali, 58%, 1d. to 1 1/16d. per degree. Soda crystals unchanged. For bleaching powder the demand continues steady, and price is firm at £7. 10s. nett., f.o.r. makers works, contracts over 1893 being taken at £7. 5s. For Chlorate of Potash there is still a strong demand, and price is firmly maintained, and for near deliveries prices are 8½d. per lb, forward deliveries from 8d. to 7d. per lb. Recovered sulphur is quiet at £4. 10s. to £4. 12s. 6d., f o.r. makers works, same prices are quoted for forward delivery. Borax selling at 29s. per cwt., delivered United Kingdom. Acetate of lime, brown and grey, is without any special demand for spot delivery, but prices are steadily maintained at £6. 5s. for brown, and £10s. 15s. for grey, at usual points of delivery. Acetate of soda still a firm market at £18. c.i.f. White sugar of lead firm at £25. 10s. nett c.i.f., but the demand is light. White powered arsenic is in good demand, more especially for export, and prices are firmly maintained at £12. 10s. nett., Garston, and £12. 15s nett., London. The advance in price of crude carbolic has caused a rise in price of crystal which is now nominally 7d. to 7¼d per lb. for 39 40%, but with few sellers. Potash, caustic, and carbonate are in good request, but there is no change in value either for spot or for forward delivery. Yellow prussiate of potash is offering at rather easier rates, viz. 9½d. to 9¾d. per lb Oxalic acid is quoted 3d. to 3¼d. The general demand for chemicals in the textile trades still continues unsatisfactory.

## THE LIVERPOOL MINERAL MARKET.

The market has ruled quiet on account of the holidays. Manganese: Prices advancing, with a strong demand. Borate, 7½d. per lb.; sulphate, £21. 10s.; oxalate, 1s 6d. per lb.; chloride £15.; carbonate, £12. 10s., steady. Magnesite (raw lump): Good demand; raw ground £6. 10s., and calcined £12. 10s. Bauxite (Irish Hill brand): Great demand for time of year, and prices firm; lump 20s., seconds 16s., thirds 12s. French chalk: Arrivals small; large orders are being booked for the new year at advanced figures. "Angel White" brand and "Silvery," 90s. to 92s. 6d.; prime quality, 90s. to 95s.; and superfine, 105s. Barytes: Carbonate, best lump, scarce; nuts, 70s. to 80s.; finest white sulphate is in demand. "Angel White," No. 1, 70s.; No. 2, 60s. to 65s.; No. 3, 45s. Pumicestone quiet. Iron ore flat, Bilbao, Irish, and Cumberland easy. Santander and manganiferous quiet. Emerystone: Good demand, and prices are firm; No. 1 lump, £5. 10s. to £6.; smalls, £5. to £5. 10s. Fullers' earth continues quiet; best lump, 55s.; fine impalpable ground, £7.; "Emerald" ground, 80s. Scheelite, wolfram, tungstate of soda, and tungsten metal continue to be much sought after, and prices are unaltered. Chrome ore is in good demand for best qualities, and prices firm. Antimony ore steady at £12., and metal £43. to £44. Asbestos very firm. Potters' lead ore, smalls, £10. 10s. to £11. Calamine strontia sulphate (celestine) quiet. Limespar steady, especially for English manufactured; old G.G.B. brand in demand at 50s. (ground). Felspar quiet. Fluorspar: Best quality scarce. Ferro-manganese in better demand. Plumbago: Spanish, £5.; best Ceylon lump at last quotations; Italian and Bohemian, £4. to £12. per ton. "Founders," £5. to £6.; Blackwell's "Mineraline," £10. French sand, 20s. to 22s. 6d. Ground mica, £45. to £50. China clay steady, common, 18s. 6d.; good medium, 22s. 6d. to 25s; best, 30s. to 35s. (at Runcorn). Bog ore (oxide of iron) scarce; finest quality 25s. to 30s.

## WEST OF SCOTLAND CHEMICALS.

GLASGOW, Tuesday.

There will be a general closing of works at the end of this week for the new year holiday, which will last from a couple of days to a week, according as stocks and market demands prescribe. The general market is quiet as a rule, but the firmness of bleaching powder is maintained, and chlorate also continues in request. Caustic sodas are very flat, although late prices nominally stand. Sulphate of copper is slightly cheaper again, and nitrate of soda is also rather easier.

Sulphate of ammonia is perhaps by this time a shade firmer, but a few days ago at least one transaction was done under £10. Continental advisers continue to affect cheap views of the market.

In the mineral oil and paraffin section there is no change except a further drop in paraffin spirit, induced less by the requirements of the market than by the rivalry amongst producers, now that it is every man for himself. Deliveries of burning paraffin oil are very large, but lubricating are less asked after, owing to the stoppage of so many works.

Bichromate of soda and bichromate of potash are in limited demand at combination prices. A new works outside of the combination is talked of.

Chief prices current are:—Soda crystals, £2. 15s. nett Tyne; alum in lump, £5. 10s., nett Glasgow; caustic soda, white, 74°, £11. 5s., 70/72°, £10. 5s., 60/62°, £9. 2s. 6d., and cream, 60/62°, £8. 17s. 6d., all nett Liverpool; bicarbonate of soda, 5 cwt. casks £6. 10s. and 1 cwt. casks £6. 15s. less 2½% Liverpool; bleaching powder, £7. 15s. nett Tyne; saltcake, 32s. 6d.; borax, English refined, £30., and boracic acid, £37. 10s. nett Glasgow; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export 4¼d. nett f.o.b. Glasgow); bichromate of soda, 3¾d., nett, for Scotch and English deliveries (for export 3½d. nett f.o.b. Glasgow); chlorate of potash, 8½d., less 5% any port; nitrate of soda, 8s. 10½d.; sulphate of ammonia, £10. f.o.b. Leith; salammoniac, first and second white, £35. and £33., less 2½% any port; sulphate of copper, £16., less 5% Liverpool; paraffin scale (hard), 1¾d., and soft 1¾d. per lb; paraffin wax, 120°, semi-refined, 2¼d.; paraffin spirit (naphtha), 5½d. a gallon; paraffin oil (burning) 5d., 5¼d. and 5½d. according to kind, at works, for Scotch buyers (English sales from ½d. to 1d. lower); ditto (lubricating), 865°, £3. 5s. to £3. 10s., 885°, £4. 5s. to £5. 15s, and 890/895°, £5 to £6. 10s. Week's imports of raw sugar at Greenock were 6,400 bags.

## THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated December 17, 1892, state:—The Chili charters for the past fortnight are advised as 1,100 tons, and exchange 18⅝d. The total charters since 1st January are 21,050 tons, against 19,500 tons same time last year.

During the past fortnight our copper market for G.o.b's and G.m.b.'s has been slightly irregular, but shows during that period a decline of £1. per ton for cash or forward metal. We closed at the end of last fortnight at £47. 17s 6d. cash and £48. 7s. 6d. three months Yesterday the final quotations for same prompts were £46. 17s 6d. and £47. 7s. 6d. The fall in silver from 39⅛d. to 38⅛d. caused depression in the market The statistical figures are certainly favourable, as will be seen below.

The returns from the producers' combination are as follows:—European, Nov. 6,789 tons, 1st July to 30th Nov. 31,998 tons, against 35,425 tons allowed; American, 10,924 tons, 1st July to 30th Nov. 54,480 tons, against 58,220 tons allowed; American (shipments), Nov. 3,897 tons, 1st July to 30th Nov. 13,494 tons, against 16,666 tons allowed.

It is reported that the Boleo copper produce at Dunkirk, and two cargoes of same afloat, amounting in all to about equal to 3,000 tons in fine has been taken over on a basis for French consumption. Furnace material still command very high prices as compared with G.m.b.'s. The total stocks in Liverpool, Swansea, London, and Havre show a decrease of 104 tons for the fortnight. The stocks include about 4,700 tons of copper sold, but not yet delivered to smelters. The visible supply shows an increase of 443 tons for the fortnight, and the total deliveries for the same period are 4,626 tons. The present stock of English G.m.b.'s in warehouse, Liverpool and Swansea, is 1,720 tons, against 1,750 tons on the 1st inst. The delivery in Liverpool and Swansea was 30 tons, making a decrease of this quantity for the fortnight. Refined and manufactured sorts are firm, quotations being: Tough cake £51. to £51. 10s.; best select, £52. to £52. 10s.; Indian sheets £55., strong sheets £60., and yellow metal sheets 5⅛d. per lb.

The sales of furnace material comprise—at Liverpool: 200 tons argentiferous leady matte, to arrive, at 10s.; 200 tons Chili regulus, to arrive, at 9s. 9d.; 92 tons argentiferous Chili regulus, on private terms; 14 tons Portuguese ore (10 per cent.), to arrive, at 9s.; and 150 tons also to arrive (5 per cent.), at 8s. 9d.; 4 tons Portuguese precipitate, to arrive, at 9s. 10½d.; 4 tons English precipitate, at 9s. 7½d. per unit; 40 tons Portuguese precipitate, to arrive, and 200 tons Mason's precipitate, on private terms; at Swansea, nil.

# New Companies.

**Absolute Safety Lamp.**—Capital £10,000. in £1. shares. This company has been formed with a view to manufacture and selling mineral oil lamps and their accessories, and also to deal in oil stoves for heating and other purposes. The subscribers to the memorandum of association are:—H. B. Phillips, 20, St. Paul's-road, commercial traveller; A. L Craig, 84, Leadenhall-street, E.C., clerk; R. Levick,

Finsbury, E.C., metal agent; H. Hoey, Newington, electrical engineer; J. G. Hoey, 5, Eldon-street, E.C., commission agent; J. C. Baker, 2, Elizabeth-villas, E., advertising agent; I. Swan, 84, Leadenhall-street, commission agent.

**Stourbridge Glazed Brick and Fireclay Co., Ltd**—CAPITAL £5,000. in £1. shares. The object of this company is to trade as brick, coal, and iron-masters, and to mine and manufacture every description of clay and clay goods. The subscribers to the memorandum of association are:—T. M. Attlee, Birmingham, chartered accountant; C. W. F. Attlee, Birmingham, wholesale confectioner; F. Clark-Fenton, Birmingham; C. Haywood, Birmingham; A. M. Haywood, Birmingham; J. T. Hill, Birmingham, chartered accountant; C. Dust, Birmingham, solicitor's clerk.

# The Patent List.

*This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.*

APPLICATIONS FOR LETTERS PATENT.

**Electrolysing Aqueous Solutions of Salts.** J. A. Heap. 22,760. Dec. 12.
**Treating Sewage.** T. Brown. 22 766.—December 12.
**Manufacture of Acetic Acid** R. Botondi and C. M. Michela. 22,817. Dec 12.
**Improvements in the Preparation of Chromic Acid.** E. Placet and J. Bonnet. 22,819. December 12.
**Dust Collectors.** T. Parkinson and G M. Parkinson. 22,822. December 12.
**Application of Aluminium and its Alloys.** W. R. Taylor. 22,843. Dec. 12.
**Obtaining Potash, Potash Salts, Water Glass, Founders' Blacking, and Manure from Waste Substances.** T. H. Cobley. 22,844. December 12.
**Apparatus for Distributing Powdered Caustic Soda, etc.** W. P. Thom 22,917. December 13.
**Separating Dust from Air, etc.** E. Stubley and J. H. Goodall. 22 December 13.
**Separating Dust from Air, etc.** P. Van Gelder. 22,919. December 13.
**Improved Anti-Friction Metal.** J. Downie. 22,003. December 14.
**Refrigerators.** E. Willows. 23,027. December 14.
**Water Softening Apparatus.** L. H. Bristowe. 23,041. Dec 14.
**Dust Collectors.** T. Parkinson and G. M. Parkinson. 23.089. December 1
**Cleaning Tin and Terne Plates.** W. Williams, J. Williams, and R. Ha 23,143. December 16.
**Desulphurizing Iron and Steel.** J. Johnson. 23,169. December 16.
**Recovering Tin, etc., from Tinned Iron.** J. C. Butterfield. 23,194. De
**Treating Bluestone and other Sulphurised Ores.** J. C. Butterfield. De
**New Colouring Matters.** H. E. Newton. 23,212. December 16.
**Purifying and Clarifying Tannic Liquids.** J. M. E. Fontenilles and H. R. Baguenier-Desormeaux. 23,233. December 16.
**Apparatus for Obtaining Smokeless Combustion.** H. H. Lake. 2 December 16.
**Receivers for the Preservation of Chloride of Ethyl and other Vol Liquids.** B. J. B. Mills. 23,287. December 17.
**Brine Evaporating.** Sir L. Bell. 23,297. December 17.

# Gazette Notices.

PARTNERSHIP DISSOLVED.

A. ARKLE AND C. A. ARKLE, under the style of Barnes and Son, Preston, che and druggists.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

PURRETT, JOHN WORLE, Weston-super-Mare, manufacturing chemist.

Adjudication.

PURRETT, JOHN WORLE, Weston-super-Mare, manufacturing chemist.

# IMPORTS OF CHEMICAL PRODUCTS

AT

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending December 17th.*

**Acetic Acid**—
Holland, 225 pkgs. Beresford & Co.
" 100 A. & M. Zimmermann

**Alum**—
Holland, 53 pkgs. Ohlenschlager Bros.

**Antimony**—
Australia, 18 t. Vivian, Younger, & Co.
Portugal, J. Bamber
France, 1 B. & F. Wf. Co., Ltd.
" 3 L. & I. D. Jt. Co.
N. Zealand, 15 Vivian, Younger, & Co.
A. Turkey, 50 French & Smith

**Arsenic**—
Germany, 10 pkgs. L. & I. D. Jt. Co.

**Asbestos**—
U. States, £2,110 Bolling & Lowe
France, 42 Mory & Co.
Belgium, 9 T. Palmer

**Barium Chloride**—
Germany, 23 pkgs. Petri Bros.

**Barytes**—
Germany, 56 cks. W. Fenton
" 26 H. Lambert

**Borate of Manganese**—
Germany, 4 pkgs. Domeier & Co.

**Caoutchouc**—
Zanzibar, 120 c. Clarke & Smith
" 23 Hale & Son
Mozambique, 27 Forbes, Forbes, & Co.
Beira, 11 L. & I. D. Jt. Co.
Inhambane, 50 "
Germany, 11 "
" 23 Wallace Bros.
France, 67 L. & I. D. Jt. Co.
" 20 Flageollet & Co.
E. Indies 100 Huttenbach & Co.
Aden, 4 L. & I. D. Jt. Co.
Zanzibar, 34 "
Mombasa, 52 Lewis & Peat
Savanilla, 1 Prop. Bull Wf.

**Castor Oil**—
Italy, 10 cs. Barron, Harveys, & Co.

**Caustic Potash**—
France, 5 c. Petri Bros.
" 106 F. W. Berk & Co., Ltd.

**Caustic Soda**—
Belgium, 9 c. Beresford & Co.

**Chemicals** (*otherwise undescribed*)
Germany, £12 J. Barber & Co.
" 10 pkgs. W. Burton & Sons
France, 2 Mory & Co
Holland, 10 G. Meyer & Co.
Germany, 90 Phillipps & Graves
" 49 T. H. Lee
" 14 A. & M. Zimmermann
" 15 L. & N. W. Ry. Co.
France, 18 B. & F. Wf. Co., Ltd.

**Chrome Ore**—
Turkey, 2 t. Hughes, Chemery, & Co.

**Cream of Tartar**—
France, 10 pkgs. E. W. Carling & Co.
" 23 B. & F. Wf. Co., Ltd.
" 5 M. Ashby, Ld.
" 5 C. F. Gerhardt
" 5 J. Puddy & Co.
Holland, 60 Middleton & Co.
Italy, 6 Italo-Brit. S. N. Co.
France, 3 Smith, Abbott, & Co.
" 10 Middleton S. S. Wf. Co.
" 3 F. C. Devon & Co.
Holland, 20 B. & F. Wf. Co., Ltd.

**Dyestuffs**—
**Aniline**
Holland, 21 pkgs. Elkan & Co.

**Argols**
France, 50 pkgs. R. Warner & Co., Ltd.
Italy, 249 Thames S. T. & L. Co., Ltd.
France, 50 Skilbeck Bros.

**Cochineal**
Canaries, 10 pkgs. A. Jiminez & Son
" 11 Kuhner, Henderson, & Co.
" 14 W. M. Smith & Sons

**Extracts**
Canada, 40 pkgs. A. J. Humphrey
Austria, 105 "
U. States, 20 Beresford & Co.

**Gambier**
E. Indies, 609 pkgs. L. & I. D. Jt. Co.
Italy, 183 Beresford & Co.
" 1,995 L & I. D. Jt. Co.
" 217 Leach & Co.
E. Indies, 367 Beresford & Co.
" 539 Adamson, Gilfillan, & Co.

**Indigo**
Greytown, 22 chts. Cotesworth & Powell
E. Indies, 90 R. Von Glehn & Sons
" 248 L. & I. D. Jt. Co.
" 6 Elkan & Co.
Italy, 54 Ross & Deering
U. States, 3 Patry & Pasteur
E. Indies, 40 Benecke, Souchay, & Co.
" 21 Arbuthnot, Latham, & Co.
" 6 Hermann & Co.
" 73 L. & I. D. Jt. Co
" 68 W. Brandts, Sons, & Co
" 112 R. Von Glehn & Sons
" 39 8 cs. 1 bx. 26 pkgs. Ross & Deering

**Myrabolams**
E. Indies, 1,740 pkgs. L. & I. D. Jt. Co.

**Orchella**
Portugal, 206 pkgs. Prop. Bull Wf.
" 15 N. Smith

**Sumac**
Italy, 100 pkgs. Union L. Co.
" 100 H. Johnson & S
" 350 J. Kitchin.
" 85 Italo-Brit. S. N.
" 28 A. Gibbs & S
France, 100 B. & F. Wf. Co.,

**Tanners' Bark**
Belgium, 35 t. T. H.
" 34 Arnati & Harr
" 16 Bevington & S

**Turmeric**
Cochin, 190 pkgs. J. P. Alpe &

**Valonia**
A. Turkey, 40 t. M. D.
" 39 J. Gr
" 19 Mavro, Valieri, &

**Dyestuffs** (*otherwise undescri*
U. States, 7 pkgs. Williams, To & Co.,

**Farina**—
Germany, 100 pkgs. T. H.
" 100 Seaward
Holland, 50 J. Knill &
" 500 J. Barber &
" 100 G. Ho
" 20 Seaward
" 100 G. Ho
Germany, 20 B. & N. Wf. Co.,
" 50 C. Tennant, Sons, &

**Glucose**—
U. States, 50 pkgs. 281 c. Ohlenschlager
" 50 305 c. Fuerst
Germany, 300 300 Baxter & H
U. States, 508 545 L. & I. I
France, 200 200 L. No
" 200 200 Trier, M
" 200 200 Barrett, Ta

ny, 10 80 J. Barber & Co.
25 202 Prop. Chmbln.'s Wf.
tes, 255 1,403 ,,
100 560 Stein Bros.
283 1,580 L. Sutro & Co.
250 250 J. Barber & Co.
d, 94 145 Prop. Sun Wf.
100 100 J. Barber & Co.
tes, 75 412 C. Southwell & Co.
20 130 Union L. Co., Ltd.

—
de, 309 t. Anglo Contl. G. Wks.

—
ny, 194 pkgs. A. Gibbs & Sons

**xide—**
a, 15 pkgs. W. Pope & Co.

**sium—**
ny, 4 pkgs. Phillipps & Graves

**sium Sulphate—**
ny, 49 pkgs. F. Jarecks

**e—**
ny, 50 t. F. W. Berk & Co., Ltd.
50 L. & I. D. Jt Co.
m, 250 Anglo Contl. G. Wks.
e, 50 J. Burnett & Sons

**l Alcohol—**
tes, 8 dms. W. Bauer & Co.
m, 2 Stein Bros.

—
ies, £54 W. M. Smith & Sons

—
d, 3 cks. Phillipps & Graves

**Salts—**
ay, 40 pkgs. F. Boehm
40 T. Palmer

**ers' Colours—**
ny, 35 pkgs. Phillipps & Graves
nd, 3 T. H. Lee
e, 3 ,,
ny, 20 ,,
47 L. & I. D. Jt. Co.
ates, 5 T. Ronaldson & Co.
m, 1 Leach & Co.
any, 2 cks. J. B. Orr & Co.
5 Burrell & Co
1 H. Lambert
nd, 2 F. Bartlett
ny, 14 W. Isted
e, 7 Flageollet & Co.
m, 61 T. Palmer
d, 2 J. Barber & Co.
m, 20 Arnati & Harrison
, 3 G. J. Thompson
1 Bennett S. S. Co., Ltd.
tes, 7 Slater & Palmer

**n Wax—**
tes, 33 cs. Williams, Torrey, & Co., Ltd.
3,046 pkgs. J. H. Usmar & Co.
ny, 7 T. H. Lee
115 H. Hill & Sons

**hate Rock—**
ny, 150 t. London Phosphate Co.
m, 50 Anglo Contl. G. Wks.
160 Lawes Chemical M. Co.
a, 150 Anglo Contl. G. Wks.

**horus—**
ny, 3 pkgs. H. Lambert

—
ny, 44 brls. C. B. Leighton
rk, 50 cks. Watts & Co.
, 30 Poth, Hille, & Co.

**ago—**
ny, 18 cks. R. Warner & Co.
43 Le Sueur & Co.
, 2 Hernu, Peron, & Co.
, 86 brls. Prop. Sun Wf.
ay, 33 cs. T. H. Lee

—
, 269 c. Charles & Fox
48 S. Ward & Co.
, 84 F. W. Berk & Co., Ltd.
80 Petri Bros.

**Salts—**
ay, 100 pkgs. A. Hunter & Co.
£125 E. Kislinbury & Co.

**um Carbonate—**
, 20 c. J. A. Reid

—
es, 125 brls. Amer Trading Co.

**re—**
ay, 99 cks. P. Hecker & Co.
es, 1,926 bgs. Ralli Bros.
ay, 3 Craven & Co.

**Silica—**
Adelaide, £10 F. Braby & Co., Ld.

**Sodium Acetate—**
Belgium, 8 pkgs. Leach & Co.

**Sodium Bicarbonate—**
Holland, 10 kgs. A. & M. Zimmermann

**Sodium Nitrite—**
Germany, 9 pkgs. C. Faust & Co.

**Stearine—**
Holland, 31 cks. Robinson, Roberts, & Co.
Belgium, 47 bgs. C. S. Lovell

**Sulphur—**
Italy, 3 t. Union L. Co., Ltd.
,, 5 J. Kitchin, Ltd.
Holland, 9 c. T. Palmer
Italy, 102 Johnson & Hooper
,, 150 W. C. Bacon & Co.

**Talc—**
Canada, £55 Wake & Sanders
France, 100 Stobbs, Wilson, & Co.
E. Indies, 249 Ross & Deering

**Tallow—**
U. States, 50 cks. Williams, Torrey & Co., Ltd.
N. Zealand, 365 N. Z. L. & M. A. Co.
,, 10 Low, Sons, & Bedford
,, 11 Culverwell, Brooks, & Co.
Canada, 30 R. Tucker & Co.
Holland, 21 J. Owen
Sydney, 200 J. Greig
Tasmania, 21 Beresford & Co.
N. Zealand, 20 Goad, Rigg, & Co.
,, 4 J. Graves
,, 30 Dyster, Nalder, & Co.
,, 2 Bourne Bros.
,, 6 Hoare, Wilson, & Co.
Holland, 6 Phillipps & Graves

**Tallow and Stearine—**
U. States, 23 pkgs. W. W. Young

**Tar—**
Jersey, 175 brls. Burt, Boulton, & Co.

**Tartaric Acid—**
Holland, 6 pkgs. Middleton & Co.
,, 18 W. C. Bacon & Co.
,, 19 Domeier & Co.
,, 5 B. & F. Wf. Co., Ltd.
,, 4 C. Christopherson & Co.
,, 6 G. Boor & Co.
France, 5 Middleton S. S. Wf. Co.
Spain, 38 B. & F. Wf. Co., Ltd.

**Turpentine—**
France, 15 cks. T. Trapp & Sons

**Ultramarine—**
Germany, 10 cs. J. Kitchen, Ltd.
Belgium, 1 ck. 24 pkgs. Leach & Co.
,, 24 Arnati & Harrison
Germany, 4 W. Fenton
Holland, 1 pkg. Phillipps & Graves

**Varnish—**
Holland, 6 pkgs. Comp. Martm. Belge

**Verdigris—**
France, 2 pkgs. B. & F. Wf. Co., Ltd.

**White Lead—**
Germany, 11 cks. Petri Bros.
,, 23 M. Ashby, Ld.
,, 15 S. H. Willoughby
Holland, 14 Spies Bros. & Co.
Germany, 82 H. Lambert
Belgium, 1 Leach & Co.
,, 1 J. L. Lyon & Co.
Germany, 14 S. H. Willoughby
Holland, 19 Burrell & Co.
,, 15 F. Pryor
,, 5 Magee, Taylor, & Co.

**Zinc Chloride—**
Holland, 4 pkgs. H. Lambert

**Zinc Oxide—**
Holland, 190 brls. M. Ashby, Ltd.
,, 50 cks. Burrell & Co.
Germany, 25 Beresford & Co.
Holland, 625 Soundy & Sons

## LIVERPOOL.

*Week ending December 15th.*

**Alum—**
Rotterdam, 40 cks.

**Ammonium Sulphate—**
Rotterdam, 16 cks.

**Barytes—**
Rotterdam, 46 cks.

**Benzol—**
New York, 966 brls.

**Bone Ash—**
B. Ayres, 150 bgs.

**Borate of Lime—**
Valparaiso, 837 bgs.

**Borax—**
Rosario, 312 bgs. Torrome, Son & Co.

**Castor Oil—**
Marseilles, 5 brls. Evans & Son
,, 30 J. J. Mack & Son
,, 5 cs. P. Harris & Co.
,, 10 97 brls.

**Chemicals** (*otherwise undescribed*)
Hamburg, 2 cks. 5 cs.
Rouen, 36 Co-op. W'sale Society, Ld.
Rotterdam, 36

**Colours—**
Hamburg, 6 cks.
Rotterdam, 27
Antwerp, 8 brls. J. T. Fletcher & Co.
,, 13 cks.

**Cream of Tartar—**
Barcelona, 5 hds.

**Dyestuffs—**
**Argols**
Bordeaux, 49 cks.
**Cochineal**
Gr. Canary, 7 bgs. Park, Macfadyen & Co.
,, 13 sks. Edwards Brs.
,, 10 Stuart Bruce
,, 16 bgs. Widow Duranty & Co.
**Extracts**
Baltimore, 50 bxs.
New York, 10 brls. J. Walker & Co.
,, 5 F. Ree
Bordeaux, 100 cks.
Ghent, 25
Fiume, 196 brls. Miller's Tanning Extract Co.
,, 204 Boutcher, Bacon & Co.
**Indigo**
Bombay, 17 cs. Forbes, Forbes & Co.
,, 51
**Madder**
Rotterdam, 4 cks.
**Orchella**
Lisbon, 21 bls F. Zagury & Co.
**Sumac**
Barcelona, 100 bgs.
**Valonia**
Constantinople, 10 bgs.

**Dyestuffs** (*otherwise undescribed*)
New York, 7 cs. Netrick & Co., Ld.

**Farina—**
Havre, 12 cs. Cunard S.S. Co., Ld.

**Glucose—**
New York, 149 brls.
Philadelphia, 8

**Horn Piths—**
Rosario, qty.

**Iodine—**
Valparaiso, 16 brls.

**Manure—**
Lisbon, 1 ck. Baerlein & Co.

**Mica—**
New York, 7 brls. Robinson & Allen

**Mineral White—**
Trieste, 100 bgs. V. Pazze

**Naphtha—**
New York, 5,430 brls.

**Ochre—**
Rouen, 63 cks. Co-op. W'sale Society, Ld.
Marseilles, 50

**Paint—**
New York, 22 cs. Elder, Dempster & Co.
,, 1 pkge. Hawkes, Somerville & Co.

**Phosphate of Lime—**
Antwerp, 420 t.

**Phosphate Rock—**
West Key, 1,900 t. United Alkali Co, Ld.

**Pitch—**
In transit, 39 cks.

**Potash—**
Rouen, 68 cks. Co-op. W'sale Society, Ld.

**Potassium Prussiate—**
Rotterdam, 7 cks.

**Pyrites—**
Huelva, 1,172 t. Tennants & Co.

**Quicksilver—**
Gr. Canary, 4 cs.

**Rosin—**
Baltimore, 500 brls.

**Saltpetre—**
Hamburg, 7 brls.

**Soap—**
New York, 2 cs. China and Japan Trading Co.
Bordeaux, 1 cs.

**Soapstone—**
Bordeaux, 100 bgs. G. G. Blackwell
Philadelphia, 140

**Sodium Nitrate—**
Iquique, 16,190 bgs.

**Stearine—**
Marseilles, 13 cs R. Pulman & Co.
Antwerp, 51 bgs.

**Sulphur—**
Huelva, 1,410 t. Matheson & Co

**Tallow—**
Boston, 915 tcs.
New York, 75 hds.
Philadelphia, 50 174 tcs.
Baltimore, 100

**Tartar—**
Bordeaux, 8 cks.

**Tartaric Acid—**
Rotterdam, 22 cks.

**Ultramarine—**
Rotterdam, 17 cs. 21 cks.

**White Lead—**
Rotterdam, 22 cks.

**Zinc Ashes—**
Boston, 111 brls.
Marseilles, 13

**Zinc Oxide—**
New York, 100 brls.
Rotterdam, 74 cks.
Antwerp, 25 brls.

**Zinc White—**
Rotterdam, 4 cks.

## HULL.

*Week ending December 17th.*

**Acetic Acid—**
Rotterdam, 10 btls. W. & C. L. Ringrose

**Acid—**
Leghorn, 10 cks. Wilson, Sons & Co., Ltd.

**Alum—**
Rotterdam, 1 ck. W. & C. L. Ringrose

**Antimony—**
Leghorn, 6 cs. Wilson, Sons & Co., Ltd.

**Barytes—**
Riga, 210 cks. Wilson, Sons & Co., Ld.
Antwerp, 21 Bailey & Leetham
Bremen, 70

**Caoutchouc—**
Hamburg, 11 cs. 6 bls. C. M. Lofthouse & Co.
,, 1 Veltmann & Co.
,, 1

**Chemicals** (*otherwise undescribed*)
Bergen, 150 bgs. Wilson, Sons & Co., Ld.
Rotterdam, 5 cks. G. Lawson & Sons

**Colours—**
Hamburg, 8 cs. Malcolm & Son
Amsterdam, 1 pkg. W. & C. L. Ringrose
Ghent, 9 brls. Wilson, Sons & Co., Ld.
Stettin, 17 cks.
Bremen, 1 cs. J. Pyefinch & Co.
Rotterdam, 34 pks. 1 ck. W. & C. L. Ringrose
,, 68 pkgs. G. Lawson & Sons
,, 12 cs. 15 30 cks. Hutchinson & Son
Flushing, 1 cs. 116 pkgs. Zeeland S. S. Co.
Rotterdam, 1 Blundell, Spence, & Co.
Antwerp, 2 pks. Wilson, Sons & Co., Ld.
,, 44 pkgs.
Hamburg, 4

**Dyestuffs—**
Stettin, 70 bgs. Wilson, Sons & Co., Ld.

**Dyestuffs—**
**Aniline**
Rotterdam, 12 cks. W. & C. L. Ringrose
" 53 pkgs. G. Lawson & Sons
**Indigo**
Rotterdam, 2 cks. W. & C. L. Ringrose
**Valonia**
Smyrna, 610 bgs.

**Farina—**
Harlingen, 950 bgs.
Ghent, 80 bxs. Wilson, Sons & Co., Ld.
Hamburg, 100 bgs.
Stettin, 900 Wilson, Sons & Co., Ld.
Hamburg, 100 "

**Glucose—**
New York, 150 brls.
Stettin, 1,250 bgs. 31 cks.
Hamburg, 12 Wilson, Sons & Co., Ld.

**Gypsum—**
Bordeaux, 50 bgs.

**Lead Acetate—**
Rotterdam, 34 cks. W. & C. L Ringrose
Hamburg, 40 Wilson, Sons & Co., Ltd.

**Manure—**
Christiansund, 12 bgs Wilson, Sons & Co., Ld.

**Naphtha—**
Rotterdam, 2 cks. W. & C. L. Ringrose

**Ochre—**
Marseilles, 93 cks. Wilson, Sons & Co., Ltd.

**Paint—**
Stockholm, 2 cs. Wilson, Sons & Co., Ld.

**Paraffin Wax**
Hamburg, 40 bgs. Wilson, Sons & Co., Ld.

**Phosphate—**
Pt. Royal, 2,040 t.
St. Valery, 190

**Pitch—**
Amsterdam, 15 cks. H. F. Pudsey
Rotterdam, 105 W. & C. L Ringrose

**Plumbago—**
Antwerp, 1 tl. Bailey & Leetham

**Potash—**
Antwerp, 25 dms. Wilson Sons & Co., Ld.

**Saltpetre—**
Hamburg, 20 kgs.

**Stearine—**
Amsterdam, 249 bgs. Wilson, Sons & Co., Ltd.
Rotterdam, 31 bgs. Hutchinson & Son
" 13 bls. Wilson, Sons & Co., Ld.
Antwerp, 6 bgs. "

**Tartar—**
Bordeaux, 14 cks. Rawson & Robinson

**Tartaric Acid—**
Rotterdam, 3 cks. Hutchinson & Sons
" 8 G. Lawson & Son

**Turpentine—**
Bordeaux, 4 cks. Rawson & Robinson

**Ultramarine—**
Rotterdam, 1 ck.

**Varnish—**
New York, 23 pks. Wilson, Sons Co., Ld.

**White Lead—**
Rotterdam, 62 cks. Hutchinson & Son
Antwerp, 14 Bailey & Leetham
Rotterdam, 48 Tudor & Sons
" 9 Blundell, Spence, & Co.

## GLASGOW.

*Week ending December 22nd.*

**Aniline Colours—**
Rotterdam, 1 cs. J. Rankine & Sons

**Barium Sulphate—**
Antwerp, 70 bgs.

**Barytes—**
Rotterdam, 46 cks. J. Rankine & Son
Hamburg, 1

**Boracic Acid—**
Leghorn, 10 cks.

**Castor Oil—**
Leghorn, 6 cs.
Marseilles, 156 brls.

**Chemicals** *(otherwise undescribed)*
Rotterdam, 6 cks. J. Rankine & Son

**Chrome Ore—**
Gulf of Macri, 2,300 t. J. & J. White

**Colours—**
Antwerp, 1 ck.
Hamburg, 34 cks.

**Cream of Tartar—**
Marseilles, 2 brls.

**Dextrine—**
Hamburg, 25 bgs.

**Dyestuffs—**
**Alizarine**
Rotterdam, 25 cks. J. Rankine & Son
**Extracts**
Baltimore, 6 brls. J. Strang & Sons
" 10 J. Dawson & Co.
Antwerp, 6 cks.

**Indigo**
Calcutta, 1 bx.

**Madder**
Marseilles, 5 brls.

**Sumac**
Palermo, 2,100 bgs. 10 bls.

**Turmeric**
Calcutta, 1,000 bgs.

**Valonia**
Smyrna, 525 t. Martin & Millar

**Farina—**
Hamburg, 100 bgs.

**French Chalk—**
Leghorn, 8 cs.

**Lead Acetate—**
Antwerp, 30 cks. Robertson, M'Intosh & Co.

**Ochre—**
Leghorn, 50 bgs.
Marseilles, 175 brls.

**Plumbago—**
Genoa, 100 bgs.

**Pyrites—**
Huelva, 1,780 t. Tharsis Co., Ld.

**Rosin—**
Charleston, 2,600 brls. L. & J. M'Lellan

**Saltpetre—**
Calcutta, 1 cs.

**Soap—**
Messina, 2 pkgs.
Marseilles, 1 cs.
Rotterdam, 2 J. Rankine & Son

**Sodium Nitrate—**
Pisagua, 900 t. A. Cross & Sons

**Stearine—**
Baltimore, 125 sks. Hutcheson, Main & Co.

**Sulphur—**
Catania, 300 t. T. Lawrie
" 720 bgs. 10 brls.
Seville, 1,150 t. The Seville Sulphur and Copper Co., Ld., Glasgow

**Tallow—**
New York, 80 hhds.

**Tartar—**
Bordeaux, 7 cks.

**Turpentine—**
Charleston, 1,315 brls. L. & J. M'Lellan

**Waste Salt—**
Hamburg, 125 cks.

**White Lead—**
Rotterdam, 65 cks. J. Rankine & Son

**Zinc Oxide—**
Rotterdam, 25 cks. J. Rankine & Son
Antwerp, 25
Marseilles, 57 brls.

**Zinc White—**
Rotterdam, 50 cks.

## TYNE.

*Week ending December 17th*

**Alum Earth—**
Hamburg, 36 cks. Tyne S.

**Colours—**
Rotterdam, 1 ck. Tyne S.

**Farina—**
Hamburg, 25 bgs. Tyne S.

**Limestone—**
Antwerp, 1 frm. Tyne S

**Pyrites—**
Copenhagen, 6 bgs.
Huelva, 1,124 t. So

**Saltpetre—**
Hamburg, 4 cks. Tyne S

**Stearine—**
Antwerp, 13 bgs. Tyne S

## GOOLE.

*Week ending December*

**Chemicals** *(otherwise unde*
Rotterdam, 3 cks.

**Dyestuffs—**
**Alizarine**
Rotterdam, 34 brls.
**Extracts**
Ghent, 100 cks.

**Dyestuffs** *(otherwise undes*
Boulogne, 44 cks. 7 cs. 1

**Farina—**
Hamburg, 1,550 bgs.

**Glucose—**
Dunkirk, 100 bgs.

**Potash—**
Calais, 13 cks. 35 dms.
Dunkirk, 2 70

**Pyrites—**
Seville, 1,030 t.

**Saltpetre—**
Rotterdam, 100 bgs.
Hamburg, 40 kgs. 24 cks.

**Sodium Silicate—**
Rotterdam, 10 cks.

**Waste Salt—**
Hamburg, 271 cks. 200 t.

**Zinc Oxide—**
Antwerp, 10 cks.

## GRIMSBY.

*Week ending December 16*

**Chemicals** *(otherwise undes*
Hamburg, 26 pkgs.
Antwerp, 15 cks. 20 cs.

**Dyestuffs** *(otherwise undes*
Dieppe, 3 cks.

**Farina—**
Hamburg, 13 bgs.

**Zinc Ashes—**
Antwerp, 43 cks.

# EXPORTS OF CHEMICAL PRODUCTS

OF

# THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

## LONDON.

*Week ending December 21st.*

**Acetic Acid—**

| | | | |
|---|---|---|---|
| Lisbon, | | 5 c. | £11 |
| Bombay, | 12 cs. | | 15 |
| Brisbane, | | 3 | 6 |

**Acids—**

| | | | |
|---|---|---|---|
| Berbice, | 6 cbys. | | £30 |
| Mazatlan, | 10 cs. | | 18 |
| Singapore, | 28 pkgs. | | 27 |
| Algoa Bay, | 2 drs. | | 13 |

**Alkali—**

| | | | |
|---|---|---|---|
| Wellington, | 1 t. | 3 c. | £29 |
| Auckland, | 1 | 4 | 12 |
| Rockhampton, | 3 | 5 | 21 |
| Greytown, | 5 | 1 | 34 |

**Alum—**

| | | | |
|---|---|---|---|
| Casablanca, | 1 t. | 7 c. | £8 |
| Mazagan, | 10 | | 55 |
| Larache, | 1 | 1 | 7 |
| Rabat, | 4 | 12 | 25 |
| Casablanca, | 1 | 6 | 7 |
| Batoum, | 20 | | 120 |
| Madras, | 7 | 12 | 38 |
| Salonica, | 10 | 2 | 55 |

**Ammonium Carbonate—**

| | | | |
|---|---|---|---|
| Bahia, | | 15 c. | £20 |
| Amsterdam, | 11 pkgs. | | 22 |
| New York, | 85 cks. | | 450 |
| B. Ayres, | 1 t. | 5 c. | 35 |
| Melbourne, | 10 cs. | | 16 |
| Lisbon, | | 4 | 7 |
| Sydney, | 20 | | 27 |

**Ammonium Carbonate and Tartaric Acid—**

| | | | |
|---|---|---|---|
| Calcutta, | | 3 c. | £15 |

**Ammonium Chloride—**

| | | | |
|---|---|---|---|
| Amsterdam, | | 5 c. | £9 |
| Constantinople, | | 12 | 20 |
| B. Ayres, | | 5 | 9 |
| Lisbon, | | 5 | 10 |
| Batoum, | 2 t. | 5 | 69 |
| Madras, | 1 | 4 | 38 |
| Sydney, | 2 cks. | | 19 |
| Bombay, | 21 | 6 | 501 |
| Salonica, | 1 | 1 | 34 |

**Ammonium Nitrate—**

| | | | |
|---|---|---|---|
| Algoa Bay, | 16 rns. | | £156 |
| Brisbane, | 12 c. | | 26 |

**Ammonium Sulphate—**

| | | | |
|---|---|---|---|
| Treport, | 10 t. | | £100 |
| Demerara, | 50 | 3 c. | 510 |
| Berbice, | 12 | | 180 |
| Cologne, | 58 | 10 | 585 |
| Hamburg, | 39 | 10 | 395 |

**Arsenic—**

| | | | |
|---|---|---|---|
| Auckland, | 1 t. | | £16 |
| Melbourne, | 2 | 10 c. | 40 |

**Barium Nitrate—**

| | | | |
|---|---|---|---|
| New York, | 2 t. | 6 c. | £44 |

**Bisulphite of Lime—**

| | | | |
|---|---|---|---|
| Bombay, | 1 t. | 15 c. | £17 |

**Bleaching Powder—**

| | | | |
|---|---|---|---|
| Philadelphia, | 26 t. | 1 c. | £230 |
| Penang, | 3 | | 42 |

**Boracic Acid—**

| | | |
|---|---|---|
| Lisbon, | | 5 c. |

**Borax—**

| | | |
|---|---|---|
| Santos, | | 6 c. |
| Rotterdam, | | 11 |
| Harlingen, | | 7 |
| Natal, | | 2 |
| Melbourne, | 2 | |
| Brisbane, | | 10 |

**Carbolic Acid—**

| | | |
|---|---|---|
| Adelaide, | 9 cks. | |
| Melbourne, | 25 pkgs. | 6 c. |
| San Francisco, | 25 | |
| Sydney, | | 8 |
| New York, | 53 brls. | |
| Hiogo, | | 3 c. 18 |
| Yokohama, | 50 | |

**Carbonate and Chloride Ammonia—**

| | | |
|---|---|---|
| Calcutta, | 3 pkgs. | |

**Caustic Potash—**
Auckland, 10 c. £11

**Caustic Soda—**
Azores, 2 t. £20
Auckland, 10 10 c. 104
E. London, 5 1 179
Natal, 9 17 118

**Cerium Oxalate—**
New York, 5 cs. £46

**Chemicals** (*otherwise undescribed*)
Bombay, 7 cs. £32
Melbourne, 5 20
Adelaide, 10 2 cks. 95
Auckland, 15 6 kgs. 1 brl. 42
Brisbane, 9 2 t. 14 c. 167
Sydney, 5 18
Calcutta, 2 12
Shanghai, 1 11

**Chloride of Lime—**
Auckland, 10 c. £6
Cape Town, 1 t. 3 15

**Citric Acid—**
Melbourne, 10 c. £79
Sydney, 11 88
Brussels, 4 kgs. 33
Hamburg, 9 73
Rotterdam, 3 26
Antwerp, 1 9
B. Ayres, 11 91
Bombay, 4 30
Libau, 10 75
Reval, 1 t. 5 195

**Coal Products—**
**Alizarine**
Bombay, 17 kgs. £116
**Aniline**
Melbourne, 1 cs. £14
New York, 26 rns. 200
Hong Kong, 10 68
**Aniline Oil**
Rotterdam, 33 drs. £1,050
**Anthracene**
Dusseldorf, 246 cks. £1,258
Rotterdam, 844 4,244
**Benzol**
Rotterdam, 58 cks. £432
Boulogne, 30 263
Calais, 27 pns. 200
**Coal Tar Dyes**
New York, 6 cks. £210
Boston, 11 pkgs. 159
**Creosote**
Sydney, 2 cs. £19
**Naphtha**
Sydney, 17 cs. £31
Calais, 27 cks. 25 rns. 140
Ghent, 10 13
**Naphthalene**
New York, 268 cks. £360
**Pitch**
Boston, 250 brls. £114
Alexandria, 250 78
Algoa Bay, 20 cks. 13
Marseilles, 1,135 t. 1,570
New York, 500 66
Duisberg, 120 185
Cette, 1,000 1,400
Malmo, 20 30
Valparaiso, 20 13
Terneuzen, 960 1,358
**Pyridine**
Stettin, 12 cks. £97
**Tar**
New York, 500 cks. £256
Boston, 500 brls. 207
Colombo, 25 rnlts. 11
Valparaiso, 50 27
**Tar Oil**
Paris, 12 cks. £26
Malmo, 4 6
**Toluol**
Calais, 50 rns. £170

**Copperas—**
Auckland, 3 t. 13 c. £8

**Copper Sulphate—**
Lisbon, 25 t. £341
Newcastle, 1 2 c. 15
Auckland, 1 12 22
Odessa, 8 16 267
Treport, 3 19 80
Barcelona, 25 5 353
Almeria, 10 162
Venice, 25 363
Zanzibar, 1 17

**Cream of Tartar—**
Cairo, 3 c. £13
Bundaberg, 3 13
Melbourne, 1 t. 80
Wellington, 1 2 93
Dunedin, 10 cs. 45
Brisbane, 1 20 181
Cape Town, 10 3 48
Sydney, 7 17 671

**Disinfectants—**
Rio de Janeiro, 25 drs. £24
Melbourne, 1,419 pkgs. 923
Wellington, 6 cs. 43
Auckland, 12 17
Athens, 2 11
Boston, 29 30
Sydney, 8 3 c. 55
Calcutta, 10 drs. 16 41
Brisbane, 11 6 70

**Flowers of Sulphur—**
Sydney, 1 t. £9
Algoa Bay, 1 2 c. 10

**Guano—**
Guadeloupe, 780 t. £8,580

**Hypophosphites—**
New York, 10 c. £178

**Magnesium Carbonate—**
Lisbon, 4 c. £7

**Manure—**
Malaga, 10 t. £90
Rotterdam, 50 505
Bundaberg, 4 4 c. 90
Oporto, 16 150
Demerara, 160 1,530
Berbice, 47 498
Jersey, 180 1,436
Gandia, 550 9 5,504
Cherbourg, 140 19 550
Copenhagen, 10 8
Hamburg, 200 2,000
Guadeloupe, 15 16
Lisbon, 85 1 677
Nevis, 22 220
St. Kitts, 25 250

**Phosphorus—**
Melbourne, 10 cs. £101

**Potash—**
Auckland, 11 c. £15

**Potash Crystals—**
Brussels, 4 c. £30
Oporto, 2 17

**Potash Salts—**
Natal, 51 t. £6,671

**Potassium Chlorate—**
New York, 7 t. 372
Shanghai, 15 kgs. 110

**Potassium Chromate—**
Sydney, 1 t. £77

**Potassium Cyanide—**
Gympie, 10 cs. £56

**Potassium Iodide—**
Melbourne, 1 c. £61

**Salt Cake—**
Baltimore, 50 t. £130

**Saltpetre—**
Bahia, 4 t. 13 c. £108
Sydney, 1 22
Gibraltar, 10 220
Hamburg, 2 9 60
Brisbane, 10 11
Cape Town, 10 10
Rio de Janeiro, 4 9 106
N. Plymouth, 7 12

**Salts of Soda & Salts of Lime—**
New York, 1 cs. 5 cks. £66

**Salts of Tartar—**
Lisbon, 10 c. £13

**Sheep Dip—**
Auckland, 50 cs. £125
Wellington, 3 t. 16 c. 97
Cape Town, 9 1 183
Stanley, F. I., 4 9 200
Calcutta, 110 drs. 35
Algoa Bay, 100 21
Natal, 17 500 129
San Francisco, 770 pkgs. 300
Adelaide, 100 cs. 300

**Silver Nitrate—**
Calcutta, 1 c. £43

**Soda—**
Berbice, 12 c. £3
Fremantle, 1 t. 3 4
Philadelphia, 67 210
Trinidad, 16 4
Greytown, 5 4 23

**Soda Ash—**
Seattle, 49 t. 19 c. £316
Sydney, 5 2 34
Townsville, 10 5 74

**Soda Crystals—**
St. Helena, 16 c. £3
Kingston, 1 t. 6 5

**Soda Salts—**
New York, 3 t. 10 c. £30

**Sodium Acetate—**
Sydney, 3 t. 1 c. £56

**Sodium Bicarbonate—**
Cape Town, 10 c. £8
Sydney, 1 t. 1 22
Zanzibar, 7 3
Brisbane, 4 19 50

**Sodium Carbonate—**
Demerara, 2 c. £10

**Sodium Silicate—**
Auckland, 5 t. 17 c. £32

**Sulphate of Iron—**
Almeria, 12 t. £27

**Sulphuric Acid—**
Algoa Bay, 3 t. £12
Colombo, 8 1 c. 38

**Superphosphate of Lime—**
Almeria, 10 t. £112

**Tartaric Acid—**
Wellington, 1 t. £107
Melbourne, 1 5 kgs. 126
B. Ayres, 10 c. 55
Calcutta. 1 ck. 15
Cape Town, 2 11
Sydney, 1 8 10 231
Brisbane, 5 29

## LIVERPOOL.

*Week ending December 21st.*

**Alkali Waste—**
Naples, 2 t. 7 c. 1 q. £10

**Alum—**
Syra, 2 t. £10
Smyrna, 7 4 c. 36
Valencia, 4 19 23
Portland, O., 29 174
Alexandria, 8 48
Volo, 5 13 29
Alexandria, 2 12 16
Patras, 10 6 62
Portland, 6 10 39
Calcutta, 59 10 1 q. 335

**Ammonium Carbonate—**
Marseilles, 5 c. £7
Barcelona, 2 t. 56
Venice, 1 36
Portland, M., 15 3 q. 26
Hamburg, 1 8 1 42
Rotterdam, 8 12
Antwerp, 1 10 42
Oporto, 1 2 28

**Ammonium Chloride—**
Philadelphia, 17 t. 3 c. £391
Venice, 5 1 103
Syra, 4 cks. 35
Smyrna, 1 33
Malta, 1 33
Alexandria, 2 66
Antwerp, 11 1 q. 19

**Ammonium Sulphate—**
Baltimore, 92 t. 11 c. £965
Santa Cruz, 1 10
Messina, 58 9 1 q. 632
Antwerp, 50 600
Hamburg, 182 8 2 1,900
Rouen, 25 253
Valencia, 148 14 2 1,510
New York, 77 4 3 761
Venice, 20 7 2 208
Malaga, 51 5 3 517
Gr. Canary, 49 10 519

**Antimony—**
Halifax, 1 ck.

**Asbestos—**
Palmera, 11 cks.

**Barium Chlorate—**
Hamburg, 3 c. £11

**Barium Sulphate—**
Leghorn, 2 t. 10 c. £15

**Barytes—**
Piræus, 19 cks.

**Bleaching Powder—**
Baltimore, 125 cks.
Calcutta, 170 cs.
Oporto, 10
Rouen, 203
Salonica, 5
Alexandria, 10 brls.
Bilbao, 40 kgs. 12
Boston, 552
B. Ayres, 36
Corfu, 10
Genoa, 157
Naples, 15
New York, 220 20 bxs.
Piræus, 6
San Sebastian, 30
Valparaiso, 7 brls.
New York, 70 t. 12 c. £583
Boston, 40 1 q. 333

**Borax—**
Vera Cruz, 6 c. £9
Calamata, 4 6
San Juan, 4 6
Antwerp, 2 t. 7 70
Rotterdam, 15 16 469
Havana, 12 1 q. 18
Amsterdam, 1 29
Hamburg, 1 16 1 54

**Boracic Acid—**
Naples, 9 c. 3 q. £18

**Calcium Chloride—**
Porto Alegre, 2 t. 10 c. £6

**Carbolic Acid—**
Rotterdam, 25 t. 2 c. £166
Montreal, 14 35
B. Ayres, 9 11
Antwerp, 1 19 2 q. 34
Rouen, 13 1 2 609
Yokohama, 2 100

**Castor Oil—**
Axim, 4 cs.
Natal, 25

**Caustic Potash—**
New York, 13 t. 6 c. £288

**Caustic Soda—**
Adelaide, 60 dms.
Baltimore, 50
Boston, 50 61 cks.
Calcutta, 107
Genoa, 134
La Guayra, 10
New York, 15 bxs.
Philadelphia, 25
Rotterdam, 38
Salonica, 65
Samarang, 60
Valencia, 60
Algoa Bay, 14 cs.
Amsterdam, 30
Brisbane, 8 22
Carthagena, Sp. 7
Catania, 118
Guantanamo, 6
Hamburg, 6
Havana, 30 kgs.
Lisbon, 10
Malaga, 50
Malta, 7
Messina, 45
Penang, 70
Pernambuco, 75
Piræus, 46
Portland, Or., 310
San Francisco, 105
St. Nazaire, 114
Savanilla, 35
Tarragona, 15 brls.
Vera Cruz, 18

**Chemicals** (*otherwise undescribed*)
Stockholm, 1 t. 5 c. £42
Hamburg, 14 22
Gothenburg, 5 8
Bussorah, 1 33
Beyrout, 12 2 q. 20
Volo, 15 24
Batoum, 2 62
San Francisco, 2 9 64
Boston, 3 14 81
Philadelphia, 13 3 288
Odessa, 2 12 83

**China Clay—**
Bombay, 5 t.
Boston, 241
Messina, 8 cks.
Moncton, N.B., 20
Oporto, 4 t.

**Chloride of Lime—**
Bordeaux, 15 t. 15 c. £57

**Chromate of Iron—**
Rotterdam, 1 c. £14

**Citric Acid—**
Oporto, 1 c. £10

**Coal Products—**
**Aniline**
New York, 30 dms.
**Aniline Colours**
Boston, 5 cks. 5 kgs.
New York, 25
**Aniline Dyes**
Hespeler, 1 kg.
**Aniline Oil**
New Orleans, 5 dms.
**Aniline Salts**
New York, 155 cs. 18 cks.
**Creosote Oil**
Cette, 100 cks.

**Cobalt Oxide—**
Valencia, 60 lbs. £15

**Copperas—**
Almeria, 1 t. 10 c. £7
Syra, 4 1 8
Piræus, 8 16 19
Calcutta, 15 25
Volo, 2 10 5
Beyrout, 19 7 3 q. 37

**Copper Sulphate—**
M. Video, 2 t. 1 c. £33
Leghorn, 8 128
Constantinople, 2 2 3 q. 30
Oporto, 10 10 1 121
Valparaiso, 5 4 1 86
Bordeaux, 45 5 1 675
Ancona, 25 5 2 360
Venice, 19 19 1 293
Trieste, 40 4 3 604
Antwerp, 5 1 2 76
Genoa, 38 13 3 558
Marseilles, 11 6 165

**Cream of Tartar—**
St. John's, N.F., 2 c. £10

**Disinfectants—**
Antofagasta, 2 c. 3 q. £30
Valparaiso, 2 9
Philadelphia, 5 cks. 15
Rangoon, 133 cs. 128

**Dried Blood—**
Gr. Canary, 5 t. 1 c. 3 q. £39

**Gypsum—**
New York, 61 t. 2 c. £206

**Lime—**
Montserrat, 12 t. £12
Manaos, 8 10 c. 8

**Magnesia—**
Lisbon, 10 tcs.
Montreal. 6 c.
Valparaiso, 7 cs.

**Magnesium Chloride—**
Nantes, 4 t. 19 c. £14

**Manganese—**
Baltimore, 133 t. 1 c.
Dunkirk, 4 brls.

**Manure—**
Bordeaux, 100 t. £288

**Oxalic Acid—**
Malta, 14 c. £20
Barcelona, 13 3 q. 19

**Paint—**
Alexandria, 4 kgs.
Assinee, 2 dms. 16 tins
Beyrout, 1 ck. 30 kgs.
Cabenda, 70
Calcutta, 44 cks. 4
Callao, 66
Cienfuegos, 5
Colombo, 21
Coquimbo, 104 cs.
Demerara, 2 60
Gibraltar, 40
Havana, 1
Jeremie, 4
Loanda, 3
Malta, 64
Maranham, 2
Old Calabar, 2 12 24 dms.
Paysandu, 66 10
Pernambuoo, 100
Progresso, 8
St. John's, Nfld., 1 cs.
Santos, 8
Savanilla, 48
Volo, 8 brls.
Algoa Bay, 5
Areceibo, 2
Bonny, 16
Caldera, 76 8 dms.
Fayal, 30
*Genoa,* 6
*Goree,* 1
Hong Kong, 220
Humacao, 1
Jaffa, 2
Para, 10 brls. 1 51 3 tcs.
St. Thome, 6 pkgs. 40
Valparaiso, 1 brl. 1 bx. 100 dms.

**Painters' Colours—**
Alexandria, 43 pkgs.
Beyrout, 20 kgs.
Bonny, 1 ck. 6 12 dms.
Canada. 1 cs.
Lisbon, 25 cks.
Maranham, 4 81
Nassau, 20
New York, 6 2
Philadelphia, 23
Rio de Janeiro, 1
Savanilla, 3
Sydney, 20
Villa Real, 6 1
Bahia, 5 25
Baltimore, 43
B. Ayres, 11 brls. 20 125 2
Calcutta, 20
Capetown, 8 6
Cardenas, 4 brls.
Coquimbo, 18 1
Havana, 3
Manaos, 5
Mauritius, 1 455
Natal, 3
Pernambuco, 95 cks.
Rosario, 10

**Paraffin Wax—**
Barcelona, 10 bgs.
Odessa, 37
Patras, 155
Genoa, 8 cs.
Leghorn, 5
Messina, 2
Para, 4 brls.
Trieste, 3 cs.

**Phosphate of Lime—**
New York, 15 c. 3 q. £16

**Picric Acid—**
Rosario, 1 c. £6

**Pitch—**
Cette, 1,120 t.
Seville, 995 2 c.
Coquimbo, 35¾
Fayal, 12 kgs.

**Potassium Bichromate—**
Odessa, 1 t. 10 c. 3 q. £55
Alexandretta, 15 30
Yokohama, 18 35

**Potassium Carbonate—**
New York, 7 t. 15 c. £150

**Potassium Chlorate—**
Rotterdam, 15 c. £42
M. Video, 2 8
Sydney, 12 t. 546
New York, 27 10 1,510
Hamburg, 1 48
Boston, 5 15 307
Capetown, 3 137
B. Ayres, 2 10 123
Hiogo, 42 10 2,445
Shanghai, 10 591

**Salt—**
Adelaide, 55 t.
Akassa, 200
Algoa Bay, 5
Bakana, 40
Boma, 5
Boston, 100
B. Ayres, 898
Cameroons, 14 14 c.
Capetown, 10
Demerara, 4
Loango, 29
Melbourne, 310
M. Video, 23 6
N. Orleans, 100
Newport News, 805
New York, 95
Old Calabar, 53½
Santos, 1
Sydney, 11
Trinidad, 10
Valparaiso, 2 3
Zalzalte, 240
Abonnema, 7 2
Accra, 5
Algoa Bay, 8 18
Antwerp, 325
Axim, 5
Buguma, 5 7
Calcutta, 4,505
E. London, 850 sks.
Newport News, 195
Opobo, 79 17
Pensacola, 300
Pt. Elizabeth, 8¾
Rangoon, 1,900
Rio de Janeiro, 3 12
Rotterdam, 306
S. Francisco, 177¼
Salt Pond, 12½
Sierra Leone, 300
Warre, 8 18

**Salt Cake—**
Pittsburgh, 148 t. 11 c. £358
Baltimore, 742 5 1,662

**Saltpetre—**
Maranham, 6 c. £7
Larnaca, 1 t. 7 29
Piræus, 9 91
Para. 1 23
Gr. Canary, 2 2 46

**Sheep Dip—**
B. Ayres, 10 t. 12 c. 2 q. £350

**Size—**
San Francisco, 2 cks.

**Soap—**
Alexandria, 23 cs. 15 bxs.
Allahabad, 6
Barbadoes, 300
Boma, 12
Bombay, 11 500
Cairo, 20
C. C. Castle, 2
Chicago, 1
Christiania, 200
Coquimbo, 1
E. London, 2 20
Elmina, 4
Gr. Bassa, 32
New York, 1 540
Rangoon, 27
St. John's, N.B., 200
,, Nfld., 70 bxs. 1 cks.
Sourabaya, 1,400
Valparaiso, 3 1 cs.
Algoa Bay, 25
Antigua, 175
Antwerp, 60
Belize, 450
Calcutta, 46
Capetown, 41
Carthagena, 9 2 cks.
Colon, 325
Curacao, 30
Demerara, 3,980
Genoa, 30
Guadeloupe, 1,500
Lahou, 50
Malta. 48 21
Manaos, 100
Morant Bay, 50
Para, 100 1
Piræus, 90
Pt. Natal, 400
St. Anne's Bay, 20
,, Lucia, 420
,, Thome, 400
Salonica, 16
Savannah la Mar, 115
Shanghai, 640
Sierra Leone, 30
Singapore, 815
Victoria, W.C.A., 50

**Soda Alkali—**
Newcastle, N.S.W., 40 brls.
New York, 35
Venice, 39

**Soda Ash—**
Adelaide, 65 cks.
Baltimore, 677 2,600 bgs.
Barcelona, 7
B. Ayres, 246 50 brls.
Calcutta, 6
Ghent, 15
Guantanamo, 6
Hamilton, 480 bgs.
Monterey, 4
Napanese, 12
Philadelphia, 509 2,078 bgs.
Portland, Or., 56
Rio de Janeiro, 2
Salonica, 77 brls.
San Francisco, 167
Smyrna, 450
Toronto, 26
Yokohama, 210
Bahia, 5
Boston, 243 680 bgs.
Havana, 3
Kobe, 131
Lisbon, 40
New York, 671 855 tcs 6,466
Rotterdam, 33
Stockholm, 5
Sydney, 295
Valparaiso, 10 brls.

**Soda Crystals—**
Barcelona, 6 cks.
Bombay, 265 kgs.
Calcutta, 14
Iquique, 100
Malta,
M. Video, 67
Pernambuco, 20
Piræus,
Smyrna,
Sourabaya, 150
Bilbao,
Callao, 50
Hong Kong, 30
Lisbon,
Malta,
Montreal,
Philadelphia, 1
Shanghai,
Toronto, 170 2
Valparaiso, 100

**Sodium Arseniate—**
New York, 3 cks.
Rouen, 11 brls.

**Sodium Bicarbonate—**
Algoa Bay, 20 kgs.
Beyrout, 20
Bombay, 50
B. Ayres, 147 cks.
Christiania, 50 4
Constantinople, 20
Genoa, 40 38
Halifax, 10
Havre, 90
Marseilles, 14 21
Melbourne, 94
Mexico City, 20
M. Video, 100
Nantes, 10
Naples, 55
Oporto, 25
Portland, Or., 500 20
S. John's, N.B., 600
Salonica, 50
San Francisco, 15
San Juan, 20
Trieste, 50
Valencia,
Alexandria, 24 b
Amsterdam, 45
Hamburg, 20
Hiogo, 500
Kobe, 1,000
Kurrachee, 20
Odessa, 130
Palmera, 50
Singapore, 4
Smyrna, 40
Sydney, 730
Toronto, 75 5
Yokohama, 250

**Sodium Borate—**
M. Video, 1 t.

**Sodium Carbonate—**
Boston, 336 brls.
Calcutta, 34
New York, 140
Sourabaya, 50

**Sodium Nitrate—**
Lisbon. 29 t. 19 c.

**Sodium Silicate—**
Brisbane, 4 brls.
La Guayra, 6
Sourabaya, 60 dms.
Volo, 25

**Sodium Stannate—**
Rio de Janeiro, 1 pkg.

**Sodium Sulphate—**
Hamburg, 8 cks.

**Stearine—**
New York, 11 cks. 29 tcs.

**Sulphate of Iron—**
Salonica, 3 t. 8 c. 3 q.

**Sulphur—**
Santa Cruz, 17 c. 2 q.
Boston, 100 t. 4
Calcutta, 15
Antwerp, 6

**Sulphuric Acid—**
Para, 1 t. 1 c.

**Sulphuric Ether—**
Ceara, 110 lbs.

**Superphosphate—**
Valencia, 62 t. 12 c.
Gr. Canary, 34 10

**Tallow—**
Axim, 3 cks.
Elmina, 2 4 cs.
Santander, 42
Alexandria, 24 brls.
C. C. Castle, 2
Gothenburg, 5

**Tar—**
Barcelona, 1 t.
Trinidad, 15 brls.
Genoa, 134

**Turpentine—**
B. Ayres, 2 cs.
Messina, 1 ck.
**Varnish—**
Barcelona, 6 brls.
Cape Town, 4 dms.
Leghorn, 1 cs. 5 cks.
Madras, 5
Mussera, 20
New York, 2
Sydney, 5 bxs.
Talcahuano, 1
**White Lead—**
Bahia, 70 kgs.
Calderra, 51
Callao, 26
Cape Town, 140 dms.
**Zinc Chloride—**
Boston, 9 c. £9

## GLASGOW.

*Week ending December 22nd.*

**Ammonium Sulphate—**
Demerara, 342 t. 13¾ c. £3,392
**Asbestos—**
Singapore, 11¾ c. 6 lbs. £190
**Benzol—**
Rotterdam, 22 dms. £215
**Bleaching Powder—**
Calcutta, 25 t. £310
**Boracic Acid—**
Christiania, 6 cks. £42
**Borax—**
Boston, 10 t. ¾ c. £302
**Castor Oil—**
Boston, 2¼ t. £61
**Chemicals** (*otherwise undescribed*)
Lisbon, £133
**Creosote—**
Bordeaux, 144 t. 19 c. £250
**Dyestuffs—**
**Alizarine**
Lisbon, 1 t. 16½ c. £144
**Alizarine Colours**
Dunedin, 16½ c. £83
**Aniline**
Dunedin, 4½ c. £24
**Madder**
Dunedin, 12½ c. £38
**Guano—**
Barbadoes, 25 t. 1 c. £275
**Lead Acetate—**
Lisbon, 15 c. £20
**Linseed Oil—**
Cape Colony, 5 t. 8½ c. £109
Mauritius, 3 18½ 91
Dunedin, 4 13¾ 92
**Manganese—**
New York, 9 t. 18 c. £94
**Manure—**
Barbadoes, 25 t. 1 c. £250
Demerara, 20 203
Mauritius, 10 100
**Nitrate of Lead—**
Rouen, 5 t. 4¾ c. £100
**Paint—**
Barbadoes, 1 t. 1½ c. £23. 13s.
Cape Colony, 144
Natal, 75
Valparaiso, 18 19¾ 309
Bombay, 5 4 39
New York, 13 4½ 273
Singapore, 2 17¾ 47
Hong Kong, 36 46
**Painters' Colours—**
Zanzibar, £43
Mauritius, £214. 15s.
Singapore, 6 t. 19¾ c. £79
Japan, 27
Dunedin, 158
**Paraffin Wax—**
Italy, 23 t. 9¾ c. £730
Rouen, 74
Hong Kong, 1 ¼ 25
Japan, 44,200 lbs. 472
**Phosphoric Acid—**
Trinidad, 3 t. 17¾ c. £73
**Pitch—**
Oporto, 102 t. 15 c. £85
Amsterdam, 200 308
Valparaiso, 137 17 166
Bombay, 52
Boston, 109 3 200
Bordeaux, 436¾ 636
**Potassium Bichromate—**
Italy, 9 t. ¾ c. £342
Lisbon, 2 13 100
Rotterdam, 12 cks. 199
Rouen, 20 2¾ 719
Boston, 10 18¾ 408
Dunedin, 15¾ 32
**Rosin Oil—**
Drontheim, 5 brls. £6. 7s.
**Salt—**
Valparaiso, 4 t. 3 c. £40. 10s.
**Salt Cake—**
Ghent, 204 t. 5 c. £307
**Soap—**
Mauritius, 16 t. 13 c. £230
Bombay, 2 9½ 24
Dunedin, 1 14½ 32
**Soda Ash—**
New York, 251 t. £1,349
**Sodium Bichromate—**
Italy, 10 t. 18½ c. £396
Rouen, 52 16½ 1,603
**Sodium Chlorate—**
Lisbon, 5½ c. £25
**Sodium Tannate—**
Calcutta, 5¾ c. £7
**Sulphate of Lime—**
Oporto, 2 t. £18
**Sulphur—**
Trinidad, 6 t. 18 c. £44
**Sulphuric Acid—**
Trinidad, 3 t. 11¼ c. £36
Demerara, 2 16¾ 20
**Tallow—**
Rotterdam, 7 t. 1 c. £280
**Tar—**
Bombay, £137
**Tartar Crystals—**
Dunedin, 11¾ c. £47
**Varnish—**
Huelva, 4 c. £24
**White Lead—**
Cape Colony, 3 t. 9¾ c. £68
Mauritius, 2 4½ £31. 15s.
Dunedin, 16 7 £359

## HULL.

*Week ending December 17th.*

**Alkali—**
Fiume, 4 cks. 50 bgs.
Harlingen, 77
**Aluminium—**
Rotterdam, 1 ck.
**Bleaching Powder—**
Bombay, 10 cks.
Stettin, 118
Trieste, 240
**Caustic Soda—**
Bombay, 20 dms.
Danzig, 86
Riga, 500
**Chemicals** (*otherwise undescribed.*)
Bombay, 2,979 cks. 160 pkgs.
Bergen, 6 cs. 12 20 kgs.
Bremen, 4
Boston, 100
Christiania, 35 cs. 3 33 pkgs. 1,863 slbs.
Copenhagen, 19
Danzig, 9 35 pkgs.
Gothenburg, 25 70 16 cs.
Hamburg, 25 pks. 66
Hango, 4
Harlingen, 1
Helsingfors, 2 50 kgs.
Rotterdam, 8 1,033 pkgs.
Riga, 201 pks. 2
Stettin, 19
Stockholm, 205
Trieste, 12
**Cottonseed Oil—**
Antwerp, 853 c.
Amsterdam, 200
Bremen, 100
Danzig, 7
Dunkirk, 100
Flushing, 424
Gothenburg, 20
Hamburg, 1,202
Stockholm, 52
Trieste, 1,413
Rotterdam, 1,819
**Creosote—**
Oporto, 1,100 brls.
Rotterdam, 70 cks.
**Dyestuffs** (*otherwise undescribed*)
Amsterdam, 2 cks.
Bombay, 6
Danzig, 1 cs.
Hamburg, 1 52 1 bl.
Rotterdam, 1
Reval, 20
Stettin, 5
**Limestone—**
Sarpsberg, 242 t.
**Linseed Oil—**
Bombay, 492 c.
Christiansund, 16
Christiania, 89
Christiansand, 7
Hamburg, 1,024
Helsingfors, 17
Stavanger, 32
**Manure—**
Ghent, 20 t. 820 bls.
Hamburg, 20
**Painters Colours—**
Antwerp, 40 cks. 1 cs.
Amsterdam, 23
Bombay, 25 151
Bremen, 1 1
Boston, 46 72 kgs.
Christiania, 2
Christiansand, 18 pkgs.
Copenhagen, 1 cs.
Drontheim, 20 dms.
Danzig, 1
Dunkirk, 2
Flushing, 12
Ghent, 38
Hamburg, 4 cs. 21
New York, 10
Rotterdam, 6 24 pkgs.
Riga, 19
Stockholm, 1 cs.
**Pitch—**
Antwerp, 179 t.
Dunkirk, 280
**Size—**
Flushing, 10 cks.
**Soap—**
Drontheim, 25 cs.
Stettin, 10
**Tallow—**
Gothenburg, 7 cks.
**Tar—**
Copenhagen, 10 cks.
Flushing, 5
Hamburg, 13
**Varnish—**
Hamburg, 2 cks.
**Zinc Chloride—**
Harlingen, 30 cks.

## TYNE.

*Week ending December 17th.*

**Alkali—**
Antwerp, 6 t. 8 c.
Leghorn, 5 17
Rotterdam, 1 5
Gothenburg, 3 14
**Alum—**
Pasages, 5 t. 9 c
**Ammonia—**
Pasages, 2 t. 6 c.
**Ammonium Carbonate—**
Aarhuus, 5 c.
**Ammonium Sulphate—**
Ghent, 30 t.
**Anthracene—**
Rotterdam, 16 t. 7 c.
**Antimony—**
Hamburg, 2 t. 10 c.
**Asbestos—**
Antwerp, 9 lbs.
**Barytes—**
Hamburg, 99 t. 2 c.
**Bleaching Powder—**
Antwerp, 85 t. 12 c.
Christiania, 15 2
Copenhagen, 50
Rotterdam, 10 1
Gothenburg, 11
Leghorn, 15 12
Pasages, 99 18
Drontheim, 10
Ghent, 10 1
**Caustic Soda—**
Antwerp, 8 t.
Hamburg, 1 9 c.
Leghorn, 3
Copenhagen, 1 3
Konigsberg, 10 3
Genoa, 14 10
**China Clay—**
Barcelona, 1 t. 1 c.
**Copperas—**
Copenhagen, 20 t. 7 c.
**Farina—**
Bergen, 4 t.
**Litharge—**
Hamburg, 1 t. 2 c.
Christiania, 1 2
**Magnesia—**
Antwerp, 1 c.
Hamburg, 1 t. 9
Leghorn, 1
**Oxalic Acid—**
Barcelona, 5 t. 4 c.
**Phosphorus—**
Barcelona, 1 t. 19 c.
**Potassium Bichromate—**
Odense, 8 c.
**Rosin—**
Leghorn, 5 t. 19 c.
**Salt—**
Bergen, 7 c.
**Soda—**
Drammen, 10 t. 1 c.
Eckernforde, 22 18
Odense, 10 9
Nakskov, 10
Aalborg, 9 18
Rotterdam, 33 16
**Soda Ash—**
Hamburg, 31 t. 9 c.
Christiania, 3 2
Drammen, 3 2
Odense, 16 11
Konigsberg, 65 6
Rotterdam, 6 16
**Soda Crystals—**
Antwerp, 10 t.
**Sodium Silicate—**
Leghorn, 8 t. 16 c.
Pasages, 6 14
**Sodium Sulphate—**
Aarhuus, 4 t. 9 c.
Copenhagen, 3 3
**Sulphur—**
Antwerp, 12 t. 10 c.
Christiania, 10
Drammen, 250
Rotterdam, 10
Gothenburg, 5
**Tallow—**
Hamburg, 2 t. 11 c.
**Varnish—**
Constantinople, 14 c.
**White Lead—**
Christiania, 2 t. 7 c.
Bastia, 1
Copenhagen, 1

## GOOLE.

*Week ending December 7th.*

**Benzol—**
Boulogne, 49 cks.
Ghent, 56 dms.
Rotterdam, 72
**Bleaching Powder—**
Ghent, 15 cks.
**Chemicals** (*otherwise undescribed*)
Rotterdam, 50 cks.
Rouen, 3
**Coal Products** (*otherwise undes.*)
Dunkirk, 1 cs. 2 cks.
**Dyestuffs** (*otherwise undescribed*)
Boulogne, 1 cs. 12 dms. 1 pkge.
Ghent, 2
Rotterdam, 1 ck.
**Manure—**
Boulogne, 37 bgs.
Rotterdam, 646
**Pitch—**
Dunkirk, 100 t.

## GRIMSBY.

*Week ending December 10th.*

**Chemicals** (*otherwise undescribed*)
Dieppe, 11 pkgs.
Hamburg, 18 40 cks.
**Coal Products** (*otherwise undesc'd.*)
Dieppe, 59 cks.
Malmo, 10

# PRICES CURRENT.

WEDNESDAY, DEC. 28th, 189

PREPARED BY HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

*The values stated are* F.O.R. *at maker's works, or at usual ports of shipment in U.K. The price in different localities may va*

| | | £ | s. | d. |
|---|---|---|---|---|
| **Acids :—** | | | | |
| Acetic, 25 °/. and 40 °/. | per cwt. | 7/- & 11/- | | |
| ,, Glacial | ,, | 50/- | | |
| Arsenic S.G., 2000° | ,, | 0 | 14 | 6 |
| Fluoric | per lb. | 0 | 0 | 3¾ |
| Muriatic (Tower Salts), 30° Tw. | per bottle | 0 | 0 | 10 |
| ,, (Cylinder), 30° Tw. | ,, | 0 | 3 | 0 |
| Nitric 80° Tw. | per lb. | 0 | 0 | 1¾ |
| Nitrous | ,, | 0 | 0 | 1¾ |
| Oxalic | nett ,, | 0 | 0 | 3¼ |
| Phosphoric, 1750° | ,, | 0 | 1 | 2½ |
| Picric | ,, | 0 | 1 | 1 |
| Sulphuric (fuming 50 °/.) | per ton | 15 | 10 | 0 |
| ,, (monohydrate) | ,, | 5 | 10 | 0 |
| ,, (Pyrites, 168°) | ,, | 3 | 5 | 0 |
| ,, ,, 150°) | ,, | 1 | 5 | 0 |
| ,, (free from arsenic, 145°) | ,, | 1 | 6 | 0 |
| Sulphurous (solution) | ,, | 2 | 15 | 0 |
| Tannic (pure) | per lb. | 0 | 1 | 2 |
| Tartaric | ,, | 0 | 0 | 11½ |
| Arsenic, white powdered | nett per ton | 12 | 10 | 0 |
| Alum (loose lump) | ,, | 5 | 5 | 0 |
| Alumina Sulphate (pure) | ,, | 5 | 0 | 0 |
| Aluminium | per lb. 2s. 8d. to | 0 | 3 | 2 |
| Ammonia, Anhydrous | ,, | 0 | 1 | 1 |
| ,, ·880 = 28° | per lb. | 0 | 0 | 2½ |
| ,, = 24° | ,, | 0 | 0 | 1¾ |
| ,, Carbonate | nett ,, | 0 | 0 | 3¼ |
| ,, Muriate | per ton | 20 | 10 | 0 |
| ,, ,, (sal-ammoniac) 1st & 2nd | per cwt. | 35/- & 33/- | | |
| ,, Nitrate | per ton | 38 | 10 | 0 |
| ,, Phosphate | per lb. | 0 | 0 | 10½ |
| ,, Sulphate (grey) London | per ton | 10 | 2 | 6 |
| ,, ,, (grey) Hull | ,, | 10 | 0 | 0 |
| Aniline Oil (pure) | per lb. | 0 | 0 | 6 |
| Aniline Salt ,, | ,, | 0 | 0 | 5⅞ |
| Antimony | per ton | 45 | 10 | 0 |
| ,, (tartar emetic) | per lb. | 0 | 1 | 0 |
| ,, (golden sulphide) | ,, | 0 | 0 | 10 |
| Barium Chloride | per ton | 7 | 10 | 0 |
| ,, Carbonate (native) | ,, | 3 | 10 | 0 |
| ,, Sulphate (native levigated) | ,, | 45/- to 75/- | | |
| Bleaching Powder, 35 % | nett ,, | 7 | 10 | 0 |
| ,, Liquor, 7 % | ,, | 3 | 10 | 0 |
| Bisulphide of Carbon | ,, | 11 | 15 | 0 |
| Chromium Acetate (crystal) | per lb. | 0 | 0 | 6 |
| Calcium Chloride | per ton | 2 | 5 | 0 |
| China Clay (at Runcorn) in bulk | ,, | 17/6 to 35/- | | |
| **Coal Tar Dyes :—** | | | | |
| Alizarine (artificial) 20 % | per lb. | 0 | 0 | 8 |
| Magenta | ,, | 0 | 3 | 9 |
| **Coal Tar Products** | | | | |
| Anthracene, 30 % A, f.o.b. London | per unit per cwt. | 0 | 0 | 0 |
| Benzol, 90 % nominal | per gallon | 0 | 1 | 7 |
| ,, 50/90 ,, | ,, | 0 | 1 | 4 |
| Carbolic Acid (crystallised 40°) | per lb. | 0 | 0 | 7¼ |
| ,, (crude 60°) | per gallon | 0 | 1 | 11 |
| Creosote (ordinary) | ,, | 0 | 0 | 1¼ |
| ,, (filtered for Lucigen light) | ,, | 0 | 0 | 1¾ |
| Crude Naphtha 30 % @ 120° C. | ,, | 0 | 0 | 9 |
| Grease Oils, 22° Tw. | per ton | 2 | 5 | 0 |
| Pitch, f.o.b. Liverpool or Garston | ,, | 1 | 8 | 0 |
| Solvent Naphtha, 90 % at 160° | per gallon | 0 | 1 | 0 |
| Coke-oven Oils (crude) | ,, | 0 | 1 | 1 |
| Copper | per ton | 46 | 15 | 0 |
| ,, Sulphate | ,, | 16 | 0 | 0 |
| ,, Oxide (copper scales) | ,, | 42 | 10 | 0 |
| Glycerine (crude) | ,, | 13 | 0 | 0 |
| ,, (distilled S.G. 1250°) | ,, | 43 | 0 | 0 |
| Iodine | nett, per oz. | 0 | 0 | 9 |
| Iron Sulphate (copperas) | per ton | 1 | 12 | 6 |
| ,, Sulphide (antimony slag) | ,, | 2 | 0 | 0 |
| Lead (sheet) for cash | ,, | 11 | 2 | 6 |
| ,, Litharge Flake (ex ship) | ,, | 13 | 0 | 0 |
| ,, Acetate (white ,, ) | ,, | 25 | 10 | 0 |
| ,, ,, brown ,, ) | ,, | 17 | 5 | 0 |
| ,, *Carbonate (white lead) pure* | ,, | 20 | 0 | 0 |
| ,, *Nitrate* | ,, | 20 | 0 | 0 |

| | | £ | s. | d. |
|---|---|---|---|---|
| Lime, Acetate (brown) | per ton | 6 | 5 | 0 |
| ,, ,, (grey) | ,, | 10 | 15 | 0 |
| Magnesium (ribbon and wire) | per oz. | 0 | 2 | 3 |
| ,, Chloride (ex ship) | per ton | 2 | 7 | 6 |
| ,, Carbonate | per cwt. | 1 | 17 | 6 |
| ,, Hydrate | per ton. | 17 | 0 | 0 |
| ,, Sulphate (Epsom Salts) | per ton | 2 | 19 | 0 |
| Manganese, Sulphate | ,, | 17 | [illegible] | 0 |
| ,, Borate | per cwt. | 2 | [illegible] | 6 |
| ,, Ore, 70 % | per ton | 4 | 5 | 0 |
| Methylated Spirit, 61° O.P. | per gallon | 0 | 2 | 0 |
| Naphtha (Wood), Solvent | ,, | 0 | 3 | 10 |
| ,, ,, Miscible, 60° O.P | ,, | 0 | 4 | 7½ |
| **Oils :—** | | | | |
| Cotton-seed | per ton | 19 | 5 | 0 |
| Linseed | ,, | 19 | 10 | 0 |
| Lubricating, Scotch, 890°—895° | ,, | 7 | 5 | 0 |
| Petroleum, Russian | per gallon | 0 | 0 | 4½ |
| ,, American | ,, | 0 | 0 | 5½ |
| Potassium (metal) | per oz. | 0 | 3 | 7 |
| ,, Bichromate | nett per lb. | 0 | 0 | 4½ |
| ,, Carbonate, 90% (ex ship) | per ton | 18 | 0 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 8½ |
| ,, Cyanide, 98% | ,, | 0 | 2 | 2 |
| ,, Hydrate (Caustic Potash) 80/85 % | per ton | 22 | 5 | 0 |
| ,, ,, (Caustic Potash) 75/80 % | ,, | 21 | 5 | 0 |
| ,, ,, (Caustic Potash) 70/75 % | ,, | 20 | 15 | 0 |
| ,, Nitrate (refined) | per cwt. | 1 | 2 | 6 |
| ,, Permanganate | per cwt. | 3 | 7 | 6 |
| ,, Prussiate Yellow | per lb. | 0 | 0 | 9¼ |
| ,, Sulphate, 90 % (ex ship) | per ton | 9 | 15 | 0 |
| ,, Muriate, 80 % ( do. ) | ,, | 8 | 0 | 0 |
| Silver (metal) | per oz. | 0 | 3 | 2½ |
| ,, Nitrate | ,, | 0 | 2 | 10 |
| Sodium (metal) | per lb. | 0 | 3 | 4 |
| ,, Carb. (refined Soda-ash) 48 % | nett per ton | 6 | 2 | 6 |
| ,, ,, (Caustic Soda-ash) 48 % | ,, | 5 | 0 | 0 |
| ,, ,, (Carb. Soda-ash) 48% | ,, | 5 | 2 | 6 |
| ,, ,, (Carb. Soda-ash) 58 % | ,, | 5 | 10 | 0 |
| ,, ,, (Soda Crystals) | ,, | 3 | 2 | 6 |
| ,, Acetate (ex-ship) | ,, | 18 | 0 | 0 |
| ,, Arseniate, 45 % | ,, | 11 | 15 | 0 |
| ,, Chlorate | per lb. | 0 | 0 | 9½ |
| ,, Borate (Borax) | net, per ton. | 29 | 0 | 0 |
| ,, Bichromate | ,, per lb. | 0 | 0 | 3¼ |
| ,, Hydrate (77 % Caustic Soda)(f.o.b.) | net pr. ton (10 ton lots) | 11 | 5 | 0 |
| ,, ,, (74 % Caustic Soda) | ,, ,, ,, | 10 | 15 | 0 |
| ,, ,, (70 % Caustic Soda) | ,, ,, ,, | 9 | 15 | 0 |
| ,, ,, (60 % Caustic Soda) | ,, ,, ,, | 8 | 15 | 0 |
| ,, ,, (60 % Caustic Soda, cream) (f.o.b.) | ,, | 8 | 10 | 0 |
| ,, Bicarbonate | ,, | 6 | 10 | 0 |
| ,, Hyposulphite | ,, | 7 | 10 | 0 |
| ,, Manganate, 30% | ,, | 16 | 0 | 0 |
| ,, Nitrate (95 %) ex-ship Liverpool | per cwt. | 0 | 8 | 9 |
| ,, Nitrite, 98 % | per ton | 30 | 0 | 0 |
| ,, Phosphate | ,, | 15 | 10 | 0 |
| ,, Prussiate | per lb. | 0 | 0 | 7¾ |
| ,, Silicate (glass) | per ton | 5 | 7 | 6 |
| ,, ,, (liquid, 100° Tw.) | ,, | 4 | 5 | 0 |
| ,, Stannate, 40 % | per cwt. | 3 | 5 | 0 |
| ,, Sulphate (Salt-cake) | per ton. | 1 | 12 | 6 |
| ,, ,, (Glauber's Salts) | ,, | 1 | 15 | 0 |
| ,, Sulphide | ,, | 7 | 15 | 0 |
| ,, Sulphite | ,, | 6 | 12 | 6 |
| Strontium Hydrate, 100% | ,, | 8 | 10 | 0 |
| Sulphocyanide Ammonium, 95 % | per lb. | 0 | 0 | 7¼ |
| ,, Barium, 95 % | ,, | 0 | 0 | 5 |
| ,, Potassium | ,, | 0 | 0 | 7½ |
| Sulphur (Flowers) | per ton. | 8 | 0 | 0 |
| ,, (Roll Brimstone) | ,, | 6 | 15 | 0 |
| ,, Brimstone : Best Quality (nominal) | ,, | 4 | 10 | 0 |
| Superphosphate of Lime (26 %) | ,, | 2 | 7 | 6 |
| Tallow | ,, | 26 | 5 | 0 |
| Tin (English Ingots) | ,, | 95 | 0 | 0 |
| ,, Crystals | per lb. | 0 | 0 | 7 |
| Zinc (Spelter) | per ton | 18 | 7 | 6 |
| ,, Chloride (solution, 96° Tw.) | ,, | 6 | 0 | 0 |

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By orde
GEO. M. WARING,
Clerk to the Board.

Public Offices, Tipton,
7th July, 1892.

## Miscellaneous.

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NOTICE is hereby given that the Endurance Seamless Tube and Vial Company, Limited, of 4, New Bartholomew Street, Birmingham, in the County of Warwick, have applied for leave to amend the specification of the Letters Patent, No. 12,371, of 1886, granted to Howard Lane and Richard Hobbs, Taunton, for "Improvements in the manufacture of metallic vessels suitable for containing gases and volatile liquids under pressure, and for other useful purposes."

Particulars of the proposed amendment were set forth in the Illustrated Official Journal (Patents) issued on the 6th July, 1892.

Any person may give notice (on Form G) at the Patent Office, 25 Southampton Buildings, London, W.C., of opposition to the amendment within one calendar month from the date of the said Journal.

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A. T. FLETCHER,
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Gas Works, Leigh, Lancashire,
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The Company have no special form of tender; but it is suggested that the Tar should be tendered for at so much per gallon, and the Ammoniacal Liquor at so much per ounce per butt—the strength being ascertained by Wills's distillation test.

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Further particulars may be obtained of the undersigned.

S. PENNY, Assoc.M.Inst.C.E.,
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**INSULATORS, BATTERY JARS, POROUS CELLS, BOTTLES, JA**
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**PURE SULPHUROUS ACID,**
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FOR EXPORT.
**S. KEYS & CO. Limited, WEST BROMWI**

**LAMP BLACK** And other **BLACKS** Loose and in Packets for Home and Export.
JAMES DRINKWATER,
Springfield Lane Chemical Works,
35EE] SALFORD
MANCHESTER.
Instantaneous Drying Black Varnish.

**TUBES**
**IRON and STEEL** (butt or lap w
**and FITTINGS** for Gas, Water, Steam Ammonia, and Hydrau
galvanized white enamelled inside, or coated by Smith's Composition. In stock to 8in. diameter
**COILS** for heating, super-heating, disti refrigerating purposes, to 500 feet long without j
JOHN SPENCER,
Globe Tube Works, Wednesbury, and 14, Thomas Apostle, Cannon-st., London.

**S. MASON & CO.,**
**BRANDON STREET, LEICESTI**
MAKERS OF
**DISINTEGRATORS, GRANULATORS, EDGE RUNNER MILLS, MIXERS, material, and STONE BREAKERS. The Simplest, Cheapest, Stro and Best Made, for hand, horse, and steam power.**
CAN BE HAD ON HIRE WITH OPTION OF PURCHA
**A DISINTEGRATOR FOR £10**
**A STONE BREAKER FOR**
*NEAR ALL SIZES IN STOCK AND IN PROGRESS; also STONE & ORE BR*
A FEW SECOND-HAND MACHINES THAT HAVE BEEN EXCHANG OUT ON HIRE FOR SALE CHEAP.

Liverpool: Exchange Chambers
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**CARBOYS.**
**SHERDLEY GLASSWORKS, ST. HELENS**

# OULTON & CO., LAMBETH, LONDON, S.E.

ANUFACTURERS OF
TONEWARE
HEMICAL
PARATUS
OF
Y DESCRIPTION.

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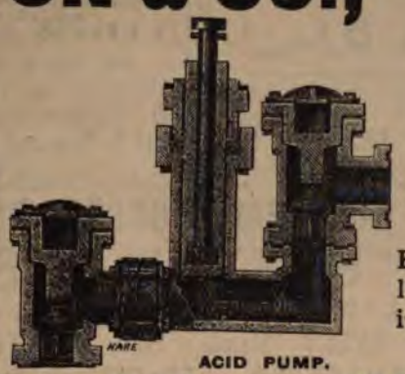
APPLICATION.



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IMPROVED STONEWARE ACID PUMPS.

Each Pump prior to leaving the Factory is put into actual work and tested.

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IS THE FREEST FROM IRON.

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BLAYDON MANURE AND ALKALI COMP.'S
RE WHITE SULPHATE OF ALUMINA,
BLANC FIXE, CHLORIDE, NITRATE,
AND SULPHIDE OF BARIUM.
LIDIFIED SULPHURIC ACID
(SUPER SULPHATE OF SODA).
UNITED ALKALI COMP.'S
HYPO-SULPHITE OF SODA,
Hydrate and Anhydrous Alumina, Chloride and Carbonate of Alumina, Aluminate of Soda, Hydrate of Barium, &c.

nts: JULIUS HULSEN & CO., NEWCASTLE-ON-TYNE.

# RUSHTON, IRVING & CO.,
VINGTON HILL, LIVERPOOL.

Specialists in Plant and Machinery for
nts, Colours, Chemical Precipitates,
White Lead, Minerals, Artificial
Manures, &c


## Tenders.

LEIGH LOCAL BOARD,

THE Gas Committee of the Leigh Local Board invite Tenders for the purchase of the Surplus TAR produced at their Gas Works for a period of one year from the 1st of September next.

All particulars, with forms of tender, may be had from the undersigned. Sealed Tenders, endorsed "Tar," and addressed to J. Thorp, Esq., chairman, to be delivered at the Town Hall, Leigh, on or before Monday, the 15th of August next.

The highest or any tender not necessarily accepted.

A. T. FLETCHER,
Engineer and Manager

Gas Works, Leigh, Lancashire,
July 30th, 1892.

TIPTON GAS WORKS.

COAL CONTRACTS.

THE Gas Committee of the Tipton Local Board invite TENDERS for the supply of GAS COAL for a period of one, two, or three years, from 1st September next, in annual quantities of about 10,000 tons, to be delivered, carriage free, to the Gas Works' Siding (L. & N. W. Railway).

Specification and form of Tender may be obtained at the Gas Works, on application to Mr. Vincent Hughes, the Engineer and Manager.

Scales and endorsed Tenders to be sent to me, the undersigned, not later than 10 a.m., on Friday, 26th instant.

The Committee do not bind themselves to accept the lowest or any Tender.

By order,
GEO. M. WARING,
Clerk to the Board.

Public Offices, Tipton,
3rd August, 1892.

## Miscellaneous.

☞ **Replies to Advertisements addressed to the "Chemical Trade Journal" Office are forwarded to Advertisers, post free, on the day of their receipt.**

A GENTLEMAN of experience is desirous of investing £5,000, or more in a sound concern, and to take an active part in the business. Strictest investigation insisted upon. Apply O.Z.O., *Chemical Trade Journal* office.

AGENCY.—A Paris firm (willing to guarantee payment for sales made) would be pleased to represent a good English house, more particularly for Chemicals used for industrial purposes.—Apply 354, *Chemical Trade Journal* Office.

CARBOLIC ACID CRYSTALS, 35 to 45 %, for sale, for prompt delivery, cheap.—Apply Sadler & Co., Limited., Middlesbrough.

VATS, Squares, Rounds, and Wooden Vessels of every description. Manufacturing Chemists who may be requiring anything in this direction would do well to write us for a quotation, as having had an extensive experience with regard to this class of work we are of course in a position to compete most favourably with anyone in the trade.—Henry Roberts & Co., Coopers and Vat Makers, Bancroft Road, Mile End, London, E.

SQUARES, Rounds, Vats, Tubs, &c. We have on hand an immense and most varied stock of the above, recently taken out of Breweries, Distilleries, &c., and we would respectfully invite Manufacturing Chemists who may be requiring anything in this direction to communicate with us.—Henry Roberts & Co., Coopers and Vat Makers, Bancroft Road, Mile End, London, E.

MURIATIC and Sulphuric Acids.—A Process is wanted to profitably utilise surplus quantities of these Acids.—Address, "Acids," *Chemical Trade Journal.*

RAILWAY Tanks, in first-class condition, for hire. Brotherton & Co., Leeds.

SECOND-HAND Beer Hogsheads and Barrels for sale cheap. Campbell & Swainston Ltd., Argyll Wharf, Limehouse, London, E.

GOOD Second-hand Rum Puncheons for sale, cheap. Apply to Campbell & Swainston, Argyll Wharf, Thomas-street, Limehouse, London, E.

PACKING TIERCES for Sale, all sizes, cheap Campbell & Swainston, Ltd., Argyll Wharf, Limehouse, London, E.

## Miscellaneous.—Cont.

TO BE SOLD, the LANCASHIRE MANURE COMPANY'S WORKS at Widnes with Machinery and 24,420 square yards of Freehold Land.—Address J. Hosking, 16, Fenwick Street, Liverpool. [169

SULPHATE OF AMMONIA STILL for Sale. Still, Heater, Lime Tank, Lime Pump, and Regulating Valves complete. Capacity, one ton of sulphate per week. Apply Alpha, *Chemical Trade Journal* office, 32, Blackfriars-street, Manchester.

FOR SALE ON HIRE PURCHASE.—MACHINERY OF EVERY DESCRIPTION supplied on deferred payments or for cash. New or second hand. Write for circular. Inspect stock. —Rowland G. Foot & Co., 12, Gt. Saint Thomas Apostle, London, E.C.

AMMONIA, all qualities and strengths. Enquiries solicited.
BROTHERTON & Co., Leeds and Wakefield.

GREASE Maker.—Wanted, practical man, accustomed to make Solidified Oil and Grease suitable for Stauffer's and other patent lubricators. Good wages to a suitable man.—Address, with full particulars, to Mr. J. Fairclough, Manor House Wharf, Nine Elms Lane, Vauxhall, London, S.W.

CHEMIST Wanted. — Accustomed to examine Oils, Soaps, Greases, &c.—Address, with full particulars, to A148, *Chemical Trade Journal* Office.

**Advertisements which arrive too late for insertion on this page will be found on first page of Matter (opposite Leading Article).**

By GEORGE LUNGE, Ph.D., Professor of Technical Chemistry, Zurich, and

FERDINAND HURTER, Ph.D., Consulting Chemist to the United Alkali Co., Limited.

## The ALKALI MAKERS' HANDBOOK

Tables and Analytical Methods or Manufacturers of Sulphuric Acid, Nitric Acid, Soda, Potash, and Ammonia. Second Edition, Enlarged and thoroughly Revised. In crown 8vo., with Illustrations, 10s. 6d.; strongly bound in half leather, 12s. [*Just Published.*

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**Oertling's & Becker's Balances,**
A number always in stock.
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**SPECIALITIES:—**
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**BAYLEY'S CARBON TUBES.**

Catalogue (upwards of 200 pages and 1,200 illustrations), and special circulars of all the above, FREE ON APPLICATION. *Estimates Furnished.*

**PHILIP HARRIS & CO., Ltd., 144 and 146, Edmund Street, BIRMINGHAM.**
**Contractors to the Admiralty, Indian, Canadian, and Tasmanian Governments, &c., &c.**

## STONEWARE ACID PANS, COCKS, RECEIVERS, &c.

## JAS. STIFF & SONS,

**LAMBETH, LONDON, S.E.,**
**MANUFACTURE EVERY KIND OF VITRIFIED STONEWARE,**
## CHEMICAL APPARATUS,
**INSULATORS, BATTERY JARS, POROUS CELLS, BOTTLES, JARS, CONDENSING WORMS, PLUMBAGO & FIRE-CLAY CRUCIBLES.**

## PURE SULPHUROUS ACID,

**SULPHITES AND BISULPHITES OF LIME, SODA, &c.**
FOR EXPORT.
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## Respirator or Lung Preserver.

To Protect the LUNGS & THROAT from Dust, Poisonous Gases & other Impurities.

PREVENTING DISEASE AND PROLONGING LIFE.

Adapted for use in **White Lead Works, Glass and Blast Furnaces, Paint and Colour Works, Chemical and Pulverising Works, Tobacco and Snuff Factories, Iron Works, Smelting and Refining Works, Furniture Factories, Paper Mills, &c., &c.**

Air is inhaled through a moist sponge and given out through an automatic valve.

**Price, Carriage Paid, 6s. each.**

**GUSTAVE ZIMMER,** 82, Mark Lane, London, E.C

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Glasgow: West Campbell st.

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**SHERDLEY GLASSWORKS, ST. HELENS.**

Manchester: Oldham Road.
London: Worship Street, E.C.

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WALKER'S PATENT

IR COMPRESSING ENGINES.

AS COMPRESSING ENGINES.

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KHAUST AND BLAST FANS.

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VINGTON HILL, LIVERPOOL.

Specialists in Plant and Machinery for

nts, Colours, Chemical Precipitates,

White Lead, Minerals, Artificial

Manures, &c


## Tenders.

TO TAR DISTILLERS.

THE Gas Committee of the Corporation of Blackpool are prepared to receive TENDERS for the Surplus TAR produced at their works during the next twelve months, from September 1st (about 1,200 tons).

Tenders endorsed outside to be addressed to the Chairman by 27th August inst.

Particulars from the undersigned.

JOHN CHEW, Engineer.

Gas Office, Blackpool,
August 14th, 1892.

GAS TAR, SPENT OXIDE.

THE Widnes Local Board invite TENDERS for (1) The purchase of about 700 Tons of Gas Tar from their Gas Works for the twelve months ending 30th September, 1893; (2) The purchase of the present stock of Spent Oxide, about 150 tons.

Forms of Tender and conditions of contracts may be obtained from W. I. Carr, C.E., Gas Works, Widnes. Endorsed Tenders to be delivered to the undersigned not later than the 23rd inst. The Board do not bind themselves to accept the highest or any tender.

H. S. OPPENHEIM, Clerk.

Town Hall, Widnes, 10th August, 1892.

TIPTON GAS WORKS.

COAL CONTRACTS.

THE Gas Committee of the Tipton Local Board invite TENDERS for the supply of GAS COAL for a period of one, two, or three years, from 1st September next, in annual quantities of about 10,000 tons, to be delivered, carriage free, to the Gas Works' Siding (L. & N.-W. Railway).

Specification and form of Tender may be obtained at the Gas Works, on application to Mr. Vincent Hughes, the Engineer and Manager.

Scales and endorsed Tenders to be sent to me, the undersigned, not later than 10 a.m., on Friday, 26th instant.

The Committee do not bind themselves to accept the lowest or any Tender.

By order,
GEO. M. WARING,
Clerk to the Board.

Public Offices, Tipton,
3rd August, 1892.

TENDERS FOR TAR.

THE Directors of the Exeter Gas-light and Coke Company invite TENDERS for their Surplus TAR for One Year, from the 14th day of October next.

Delivery on Company's Works, filled into purchaser's tanks.

Payment, Cash Monthly.

Sealed Tenders, endorsed "Tender for Tar," will be received by the undersigned on or before Wednesday, the 31st of August next; but the Directors do not bind themselves to accept the highest or any tender.

By order,
W. A. PADFIELD,
Secretary and Manager.

Exeter, August 5th, 1892.

## Miscellaneous.

☞ **Replies to Advertisements addressed to the "Chemical Trade Journal" Office are forwarded to Advertisers, post free, on the day of their receipt.**

CHEMIST (22) desires re-engagement. 4 years' training in a well-known Manchester analyst's laboratory. 2 years in a large London chemical works. Thoroughly experienced in almost all kinds of commercial analyses, the management of men, and chemical manufactory.—Highest qualifications and testimonials.—Apply "Laboratory," *Chemical Trade Journal* Office.

MANUFACTURING Chemist, Ph.D., desires Situation in Works. Experience in Leblanc and Ammonia Soda, Acids, Alumina, Magnesia.—Apply L. G., *Chemical Trade Journal* Office.

CHEMIST or Manager.—Situation wanted by competent Chemist, F.I.C. Large practical experience. Good references and testimonials.—Address X.Y., *Chemical Trade Journal* Office.

TO BE SOLD, the LANCASHIRE MANURE COMPANY'S WORKS at Widnes with Machinery and 24,420 square yards of Freehold Land.—Address J. Hosking, 16, Fenwick Street, Liverpool. [169

## Miscellaneous.—Cont.

CHEMIST Wanted. — Accustomed to examine Oils, Soaps, Greases, &c.—Address, with full particulars, to A148, *Chemical Trade Journal* Office.

FERRO Chrome.—Lowest offers for regular deliveries of Terro Chrome, 50 per cent., 60 per cent., and 70/75 per cent., in one and five ton lots, are desired. Address M 179, *Chemical Trade Journal* office.

A YOUNG Man (20) desires a situation in a Factory (explosives preferred) or Laboratory. Several years' practical and analytical experience. Address O. H. L., *Chemical Trade Journal* office.

A GENTLEMAN of experience is desirous of investing £5,000. or more in a sound concern, and to take an active part in the business. Strictest investigation insisted upon. Apply O.Z.O., *Chemical Trade Journal* office.

CARBOLIC ACID CRYSTALS, 35 to 45 °/₀, for sale, for prompt delivery, cheap.—Apply Sadler & Co., Limited., Middlesbrough.

RAILWAY Tanks, in first-class condition, for hire. Brotherton & Co., Leeds.

SECOND-HAND Beer Hogsheads and Barrels for sale cheap. Campbell & Swainston Ltd., Argyll Wharf, Limehouse, London, E.

GOOD Second-hand Rum Puncheons for sale, cheap. Apply to Campbell & Swainston, Argyll Wharf, Thomas-street, Limehouse, London, E.

PACKING TIERCES for Sale, all sizes, cheap Campbell & Swainston, Ltd., Argyll Wharf, Limehouse, London, E.

SULPHATE OF AMMONIA STILL for Sale. Still, Heater, Lime Tank, Lime Pump, and Regulating Valves complete. Capacity, one ton of sulphate per week. Apply Alpha, *Chemical Trade Journal* office, 32, Blackfriars-street, Manchester.

FOR SALE ON HIRE PURCHASE.—MACHINERY OF EVERY DESCRIPTION supplied on deferred payments or for cash. New or second hand. Write for circular. Inspect stock. —Rowland G. Foot & Co., 12, Gt. Saint Thomas Apostle, London, E.C.

AMMONIA, all qualities and strengths. Enquiries solicited.
BROTHERTON & Co., Leeds and Wakefield.

WANTED, experienced practical man who understands newest process making Peroxide Hydrogen. State experience, wages, &c., in confidence. Address, J.C.H., *Chemical Trade Journal* office.

**Advertisements which arrive too late for insertion on this page will be found on first page of Matter (opposite Leading Article).**

# Colour in Woven Design.

By Professor ROBERTS BEAUMONT, of the Textile Industries Department, The Yorkshire College. With 32 Coloured Plates and numerous Illustrations. 21s.

"An excellent work on the application of colour to woven design."—*Textile Manufacturer.*

"The illustrations are the finest of the kind we have yet come across, and the publishers are to be congratulated on the general excellence of the work."—*Textile Mercury.*

*LONDON:* WHITTAKER & CO.,
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A number always in stock.
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# PURE SULPHUROUS ACID,

## SULPHITES AND BISULPHITES OF LIME, SODA, &c.

FOR EXPORT.

## S. KEYS & CO. Limited, WEST BROMWICH.

## Manlove, Alliott & Co. Ld.,

**ENGINEERS,**
**NOTTINGHAM.**

**See large advertisement first week in each month.** [108*d*

**TUBES**

**IRON and STEEL (butt or lap welded) and FITTINGS** for Gas, Water, Steam, Liqui Ammonia, and Hydraulic Wor galvanized white enamelled inside, or coated by Dr. Ang Smith's Composition. In stock to 8in. diameter.
**COILS** for heating, super-heating, distilling a refrigerating purposes, to 500 feet long without joints

**JOHN SPENCER,** 2.00
**Globe Tube Works, Wednesbury, and 14, Great Thomas Apostle, Cannon-st., London, E.C.**

# S. MASON & CO.,

**BRANDON STREET, LEICESTER**

**MAKERS OF**

**DISINTEGRATORS, GRANULATORS, EDGE RUNNER MILLS, MIXERS, for an material, and STONE BREAKERS. The Simplest, Cheapest, Strongest, and Best Made, for hand, horse, and steam power.**

CAN BE HAD ON HIRE WITH OPTION OF PURCHASE.

# A DISINTEGRATOR FOR £10

# A STONE BREAKER FOR £20

*NEAR ALL SIZES IN STOCK AND IN PROGRESS; also STONE & ORE BREAKER*

A FEW SECOND-HAND MACHINES THAT HAVE BEEN EXCHANGED AN OUT ON HIRE FOR SALE CHEAP.

**CANNINGTON, SHAW & CO., LIMITED,**

# CARBOYS.

**SHERDLEY GLASSWORKS, ST. HELENS.**

Liverpool: Exchange Chambers
Glasgow: West Campbell-st.

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# DOULTON & CO., LAMBETH, LONDON, S.E.

MANUFACTURERS OF

STONEWARE CHEMICAL APPARATUS OF EVERY DESCRIPTION.

PRICE LISTS ON APPLICATION.

ACID PUMP.

IMPROVED STONEWARE ACID PUMPS.

Each Pump prior to leaving the Factory is put into actual work and tested.

SHOWROOMS: 17, Deansgate, Manchester; 100, Soho St., Liverpool; Granville St., Birmingham; 6, Rue de Paradis, Paris.

# SPENCE'S LUMP ALUM, POTASH, OR AMMONIA

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PETER SPENCE & SONS, Manchester Alum Works, MANCHESTER.

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BLAYDON MANURE AND ALKALI COMP.'S

PURE WHITE SULPHATE OF ALUMINA, BLANC FIXE, CHLORIDE, NITRATE, AND SULPHIDE OF BARIUM.

# SOLIDIFIED SULPHURIC ACID

(SUPER SULPHATE OF SODA).

UNITED ALKALI COMP.'S

HYPO-SULPHITE OF SODA,

Also Hydrate and Anhydrous Alumina, Chloride and Carbonate of Alumina, Aluminate of Soda, Hydrate of Barium, &c.

Agents: JULIUS HULSEN & CO., NEWCASTLE-ON-TYNE.

# RUSHTON, IRVING & CO.,

BEVINGTON HILL, LIVERPOOL.

Specialists in Plant and Machinery for

Paints, Colours, Chemical Precipitates, White Lead, Minerals, Artificial Manures, &c


## Tenders.

COUNTY BOROUGH OF WIGAN.

TO TAR DISTILLERS AND OTHERS.

THE Gas Committee of the Wigan Corporation invite TENDERS for TAR for one year, commencing on the 1st September, 1892, and terminating on the 31st August, 1893.

Particulars and form of tender may be obtained on application to the undersigned.

The highest tender not necessarily accepted.

Tenders sealed and endorsed "Tar" to be addressed and delivered to ARTHUR SMITH, Esq., Town Clerk, on or before the 19th September next ensuing.

JOS. TIMMINS, Engineer, etc.

Boro' Gas Works, Wigan,
August 18th, 1892.

SALE OF GAS TAR AND AMMONIACAL LIQUOR AT THE ROYAL ARSENAL, WOOLWICH.

THE SECRETARY of STATE for WAR is prepared to receive TENDERS for the purchase of such quantities of GAS TAR and AMMONIACAL LIQUOR as may be for disposal during a period of three years from the 1st October, 1892, at the Royal Arsenal, Woolwich, where Forms of Tender and all information may be obtained on application to the Director-General of Ordnance Factories.

The Tenders are to be delivered at the War Office, Pall-mall, S.W., by Twelve o'clock noon, on Friday, the 2nd day of September, 1892, addressed to the Director of Army Contracts, and marked on the outside, "Tender for the purchase of Gas Tar, &c."

G. LAWSON, Director of Army Contracts.

War Office, Pall-mall, S.W., 15th August, 1892.

COUNTY BOROUGH OF HUDDERSFIELD.
GAS DEPARTMENT.

TO MAFUFACTURING CHEMISTS, &c.

THE Gas Committee of the Huddersfield Corporation are prepared to receive TENDERS for the SPENT OXIDE during the ensuing twelve months.

The Spent Oxide will contain from 50 to 70 per cent. of sulphur of good quality. Parties tendering to state the price per unit of sulphur contained in one ton of the material.

The Spent Oxide to be put into trucks at the Hillhouse Depot, Huddersfield, or into barges on the canal at the Huddersfield Gasworks, free of charge.

Tenders to be addressed and sent to Mr. W. R. Herring, Gasworks Engineer, Leeds Road, Huddersfield, not later than Monday, September 5th, 1892, endorsed "Tender for Spent Oxide."

By Order,
H. BARBER, Town Clerk.

Huddersfield, August 17th, 1892.

## Miscellaneous.

☞ **Replies to Advertisements addressed to the "Chemical Trade Journal" Office are forwarded to Advertisers, post free, on the day of their receipt.**

SULPHUROUS Fumes.—Wanted latest and best process for utilising the fumes arising from the calcination of Blende Ores. Address "Sulphur," *Chemical Trade Journal* Office.

AMMONIA SODA. Wanted Man, with practical knowledge of this process. Address in confidence to A. S., *Chemical Trade Journal* Office.

CHEMIST wanted, accustomed to the Oil and Grease trade, and experienced in matching samples preferred. Address W., 182, *Chemical Trade Journal* Office.

IN the centre of the Chemical Industry at Bow, London. Spacious, well-lighted, manufacturing premises; with well, boiler-shed, coal store, and use of wharf and River Lea. Would be let on lease at £95. rental or 73 years lease to be sold. Full particulars apply—"Miller," 35, Rochester-square, London, N.W.

MANUFACTURING Chemist, Ph.D., desires Situation in Works. Experience in Leblanc and Ammonia Soda, Acids, Alumina, Magnesia. —Apply L. G., *Chemical Trade Journal* Office.

CHEMIST or Manager.—Situation wanted by competent Chemist, F.I.C. Large practical experience. Good references and testimonials.—Address X.Y., *Chemical Trade Journal* Office.

## Miscellaneous.—Cont.

WANTED, Experienced Practical Man who understands manufacture of Carbonate of Ammonia. Write full particulars and wages required to "Carbonate," *Chemical Trade Journal* office.

TO BE SOLD, the LANCASHIRE MANURE COMPANY'S WORKS at Widnes with Machinery and 24,420 square yards of Freehold Land.—Address J. Hosking, 16, Fenwick Street, Liverpool. [16

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GOOD Second-hand Rum Puncheons for sale, cheap. Apply to Campbell & Swainston, Argyll Wharf, Thomas-street, Limehouse, London, E.

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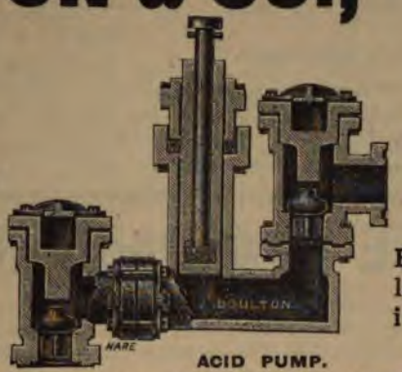


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J. MELLOR,
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Eccleshill,
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By order,
ALFRED GILL, Town Clerk.
Town Hall, Birkenhead, 24th September, 1892.

TO TAR, &c., DISTILLERS.

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BICHROMATE OF POTASH.—Wanted a competent Working Foreman, able to take entire charge of a five ton plant. State wages required and full particulars of experience, which will be treated in strict confidence.—Apply, by letter, to Bichrome, c/o Waverley Hotel, Manchester.

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The Committee do not bind themselves to accept the highest or any tender.

By Order,
WRIGHT LISSELL,
Town Clerk.

Town Hall, Ilkeston,
11th October, 1892.

## Miscellaneous.

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Victoria Chemical Works, New Mills, near Stockport.—Re John Fielding and Co., manufacturing chemists, drysalters, &c.—Under Deed of Assignment.—Important Piecemeal Sale of Chemical Manufacturing Plant, Extensive Stock-in-Trade, of Chemicals, Carts, Lurries, Phæton, Office Furniture, and Effects.

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The Bright Parts varnished and the other parts painted.

Measured at Centre of Rope, the Diameter of any Pulley,
For Rope.. ¾ 1 1¼ 1½ 1¾ 2 inches thick,
is .... 1¼ 1½ 2 2½ 3 3½ inches
greater than its Nominal Diameter in the Price List,
unless it is a Guide-Pulley, in which the Rope, of course, runs in the bottom of the Groove, clear of the sides.

The Construction of the following Price-List is concise and unique, comprising six Lists in one. The Price of any Pulley will be found opposite its Diameter in the Column headed by the desired Size of Rope.

Diameter of Pulley (Ft. In.) by Thickness of Rope; Price by Number of Grooves:

| ¾" | 1" | 1¼" | 1½" | 1¾" | 2" | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1ft 0 | .. | .. | .. | .. | .. | £1 0 | £1 17 | £2 10 | £3 0 | £3 9 | £3 18 |
| 1 3 | .. | .. | .. | .. | .. | 1 2 | 1 19 | 2 13 | 3 4 | 3 14 | 4 4 |
| 1 6 | .. | .. | .. | .. | .. | 1 4 | 2 2 | 2 16 | 3 9 | 4 0 | 4 10 |
| 1 9 | 1ft 3 | .. | .. | .. | .. | 1 6 | 2 5 | 2 19 | 3 14 | 4 6 | 4 18 |
| 2 0 | 1 6 | .. | .. | .. | .. | 1 8 | 2 8 | 3 3 | 3 19 | 4 12 | 5 6 |
| 2 3 | 1 9 | .. | .. | .. | .. | 1 10 | 2 11 | 3 7 | 4 4 | 4 18 | 5 14 |
| 2 6 | 2 0 | 1ft 6 | .. | .. | .. | 1 12 | 2 14 | 3 11 | 4 9 | 5 4 | 6 0 |
| 2 9 | 2 3 | 1 9 | .. | .. | .. | 1 14 | 2 18 | 3 16 | 4 14 | 5 10 | 6 8 |
| 3 0 | 2 6 | 2 0 | .. | .. | .. | 1 17 | 3 2 | 4 1 | 5 0 | 5 17 | 6 16 |
| 3 6 | 3 0 | 2 6 | 2ft 0 | .. | .. | 2 3 | 3 10 | 4 12 | 5 12 | 6 11 | 7 10 |
| 4 0 | 3 6 | 3 0 | 2 6 | .. | .. | 2 9 | 3 19 | 5 4 | 6 5 | 7 5 | 8 5 |
| 4 6 | 4 0 | 3 6 | 3 0 | 2ft 6 | .. | 2 16 | 4 9 | 5 17 | 7 0 | 8 2 | 9 2 |
| 5 0 | 4 6 | 4 0 | 3 6 | 3 0 | .. | 3 4 | 5 0 | 6 11 | 7 18 | 9 0 | 10 1 |
| 5 6 | 5 0 | 4 6 | 4 0 | 3 6 | 3ft 0 | 3 13 | 5 12 | 7 6 | 8 14 | 10 0 | 11 3 |
| 6 0 | 5 6 | 5 0 | 4 6 | 4 0 | 3 6 | 4 3 | 6 6 | 8 3 | 9 14 | 11 2 | 12 8 |
| 6 6 | 6 0 | 5 6 | 5 0 | 4 6 | 4 0 | 4 15 | 7 2 | 9 2 | 10 18 | 12 7 | 13 16 |
| 7 0 | 6 6 | 6 0 | 5 6 | 5 0 | 4 6 | 5 9 | 8 1 | 10 4 | 12 1 | 13 15 | 15 8 |
| | 7 0 | 6 6 | 6 0 | 5 6 | 5 0 | 6 5 | 9 3 | 11 9 | 13 9 | 15 7 | 17 4 |
| | 7 6 | 7 0 | 6 6 | 6 0 | 5 6 | .. | 10 8 | 12 17 | 15 0 | 17 8 | 19 3 |
| | 8 0 | 7 6 | 7 0 | 6 6 | 6 0 | .. | 11 16 | 14 8 | 16 15 | 19 0 | 21 5 |
| | | 8 0 | 7 6 | 7 0 | 6 6 | .. | 13 7 | 16 5 | 18 14 | 21 2 | 23 10 |
| | | .. | 8 0 | 7 6 | 7 0 | .. | 15 8 | 18 2 | 20 17 | 23 9 | 26 0 |
| | | 9 0 | .. | 8 0 | 7 6 | .. | .. | 20 5 | 23 4 | 26 0 | 28 14 |
| | | | 9 0 | .. | 8 0 | .. | .. | 22 12 | 25 14 | 28 13 | 31 10 |
| | | | .. | 9 0 | .. | .. | .. | 25 0 | 28 7 | 32 9 | 34 10 |
| | | | 10 0 | .. | 9 0 | .. | .. | 27 10 | 31 3 | 34 15 | 38 0 |
| | | | | 10 0 | .. | .. | .. | 30 10 | 34 15 | 38 15 | 42 10 |
| | | | | | 10 0 | .. | .. | 34 10 | 39 5 | 43 15 | 48 0 |

A Pulley, of a Diameter under the smallest of its size priced in List, is not subject to any reduction.
A Pulley, of a Diameter between any two of those priced in List, is priced same as the larger of the two.
A Pulley, for Rope of a size less than the smallest priced in List, is not subject to any reduction.
A Pulley, for Rope of a size between any two of those priced in List, is priced same as the larger of the two.

‡A Pulley, with 7 Grooves, is one-eighth; 8 Grooves, is one-fourth; 9 " " three-eighths; 10 " " one-half; 11 " " five-eighths; 12 " " three-fourths; 13 " " seven-eighths; 14 " " one-whole — higher than the List Price of a Pulley with Six Grooves.

Pulleys can be supplied of almost any Diameter under those priced in List.
Up to 6 feet, they can be supplied only midway exactly between those Diameters priced in List.
From 6 to 10 feet, they can also be supplied of the Diameters which are priced in List.
Orders for Pulleys of the Diameters which are priced in List can be executed much more rapidly than others.

The Price of a Pulley, when made in Halves, has added to it a sum equal to one-eighth of its Price in the List.
" " , when for Square Ropes, " " one-third " "
" " , when with Two Rows of Arms, " " one-fifth " as per Line. †

[illegible]

## FINISHED GEAR WHEELS

Either Spur or Bevel; having the Eye Bored, a Keyway slotted and a steel Key fitted.
The Tooth-pattern being carved, and the Wheel pitched and moulded, entirely by Machinery of the utmost accuracy.

[illegible]

| Diam. Ft. In. | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 6 | £1 3 | £1 6 | | | | | | | | | |
| 0 9 | 1 5 | 1 9 | £1 14 | £2 0 | £2 6 | | | | | | |
| 1 0 | 1 7 | 1 12 | 1 18 | 2 4 | 2 11 | £2 18 | £3 6 | £3 15 | | | |
| 1 3 | 1 9 | 1 13 | 2 2 | 2 9 | 2 17 | 3 5 | 3 15 | 4 5 | £4 16 | £5 8 | £6 1 |
| 1 6 | 1 11 | 1 15 | 2 6 | 2 14 | 3 3 | 3 12 | 4 4 | 4 16 | 5 9 | 6 1 | 6 18 |
| 1 9 | 1 13 | 2 1 | 2 10 | 2 19 | 3 9 | 4 0 | 4 13 | 5 7 | 6 2 | 6 18 | 7 15 |
| 2 0 | 1 16 | 2 4 | 2 14 | 3 4 | 3 15 | 4 6 | 5 3 | 5 18 | 6 15 | 7 13 | 8 12 |
| 2 3 | 1 19 | 2 8 | 2 18 | 3 9 | 4 [illegible] | 4 16 | 5 11 | 6 9 | 7 8 | 8 8 | 9 9 |
| 2 6 | 2 2 | 2 12 | 3 3 | 3 15 | 4 9 | 5 4 | 6 0 | 7 0 | 8 1 | 9 3 | 10 6 |
| 2 9 | 2 5 | 2 16 | 3 8 | 4 1 | 4 16 | 5 12 | 6 10 | 7 11 | 8 14 | 9 18 | 11 4 |
| 3 0 | 2 8 | 3 0 | 3 13 | 4 7 | 5 3 | 6 0 | 7 0 | 8 4 | 9 8 | 10 14 | 12 2 |
| 3 3 | 2 12 | 3 4 | 3 18 | 4 13 | 5 10 | 6 9 | 7 10 | 8 16 | 10 2 | 11 10 | 13 0 |
| 3 6 | 2 16 | 3 8 | 4 3 | 4 19 | 5 17 | 6 18 | 8 0 | 9 8 | 10 16 | 12 8 | 13 18 |
| 3 9 | 3 0 | 3 12 | 4 8 | 5 5 | 6 4 | 7 7 | 8 11 | 10 0 | 11 10 | 13 6 | 14 16 |
| 4 0 | 3 4 | 3 16 | 4 13 | 5 11 | 6 12 | 7 15 | 9 2 | 10 12 | 12 4 | 13 18 | 15 15 |
| 4 3 | 3 8 | 4 1 | 4 18 | 5 17 | 7 0 | 8 5 | 9 13 | 11 4 | 12 18 | 14 14 | 16 14 |
| 4 6 | 3 12 | 4 6 | 5 3 | 6 4 | 7 8 | 8 14 | 10 4 | 11 16 | 13 12 | 15 10 | 17 13 |
| 4 9 | 3 16 | 4 11 | 5 9 | 6 11 | 7 16 | 9 3 | 10 15 | 12 9 | 14 6 | 16 7 | 18 12 |
| 5 0 | 4 0 | 4 16 | 5 15 | 6 18 | 8 4 | 9 13 | 11 6 | 13 2 | 15 1 | 17 4 | 19 11 |

| Diam. Ft. In. | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|
| 5 3 | £5 1 | £6 1 | £7 5 | £8 13 | £10 3 | £11 18 | £13 15 | £15 16 | £18 2 | £20 10 |
| 5 6 | 5 6 | 6 8 | 7 13 | 9 2 | 10 13 | 12 10 | 14 8 | 16 11 | 19 0 | 21 10 |
| 5 9 | 5 12 | 6 15 | 8 1 | 9 11 | 11 4 | 13 2 | 15 2 | 17 7 | 19 18 | 22 10 |
| 6 0 | 5 18 | 7 2 | 8 9 | 10 0 | 11 15 | 13 14 | 15 16 | 18 3 | 20 16 | 23 11 |
| 6 6 | 6 10 | 7 16 | 9 5 | 10 18 | 12 15 | 14 18 | 17 5 | 19 15 | 22 12 | 25 12 |
| 7 0 | 7 3 | 8 10 | 10 1 | 11 17 | 13 17 | 16 3 | 18 14 | 21 9 | 24 9 | 27 15 |
| 7 6 | 7 17 | 9 6 | 11 0 | 12 18 | 15 0 | 17 10 | 20 5 | 23 4 | 26 8 | 30 0 |
| 8 0 | 8 11 | 10 2 | 12 0 | 14 0 | 16 6 | 18 18 | 21 16 | 25 0 | 28 9 | 32 5 |
| 9 0 | .. | 11 16 | 13 18 | 16 5 | 18 18 | 21 17 | 25 3 | 28 15 | 32 14 | 37 0 |
| 10 0 | .. | .. | 16 2 | 18 16 | 21 16 | 25 2 | 28 15 | 32 15 | 37 2 | 41 0 |

A Wheel, of a Breadth smaller than the narrowest priced in List, is not subject to any reduction.
A Wheel, of a Breadth greater than the broadest priced in List, is specially quoted for.
A Wheel, of a Breadth between any two of those priced in List, is priced same as the broader of the two.
A Wheel, of a Diameter between any two of those priced in List, is priced in proportion.

Wheels can be made to any desired Breadth of Face.
They can be of any Pitch, and without extra charge if in fair proportion to the Breadth.
They can be supplied exactly to any required Diameter, in addition to those priced in List.
The Diameter of a Gear Wheel is invariably measured at the Pitch line.

The Price of a Wheel, when made in Halves, has added to it a sum equal to one-fifth of its price in the List.
" " , when Flanged on one side " " one-seventh " "
" " , when Flanged on both sides " " one-fourth " "
" " , when with Double Helical Teeth, " " one-fourth " "

[illegible]

H.P. Rules. — "We lay down no stipulations regarding Bore and Strength, but execute both to any required extent without extra charge if they are in fair proportion to the size of the Wheel or Pulley, the strength of which we make abundant for its presumable H.P. Transmission as indicated by its general dimensions, and according to the following Rules.

Single Belting 3 4 5 6 7 8 9 10 12 15 16 inches Broad will transmit [illegible] Horse Power for every hundred feet of velocity per minute.

One Rope... ¾ 1 1¼ 1½ 1¾ 2 inches Diam. will transmit 1-5th 1-4th 2-5ths 3-5ths 4-5ths ONE Horse Power for every hundred feet of velocity per minute.

A Gear Wheel having

| ordinary Teeth | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | inches Broad, |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| and of .. .. | 1 | 1¼ | 1½ | 1¾ | 2 | 2¼ | 2½ | 2¾ | 3 | 3¼ | 3½ | inches Pitch, |
| will transmit .. | [illegible] | [illegible] | [illegible] | 2 | 3 | 4½ | 6¼ | 8½ | 11½ | 14⅝ | 19 | H.P., if Spur; |
| or .. .. .. | [illegible] | [illegible] | [illegible] | 1½ | 2⅝ | 3½ | 4⅝ | 6¼ | 8½ | 11 | 14 | H.P., if Bevel, |

— for every hundred feet of circumference velocity per minute; Double-flanged Wheels being one-third more powerful. Helical Teeth are one-fifth stronger, and Mortice Teeth one-fourth weaker, than ordinary teeth.

| Steel Shafting | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | inches Diam. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| will transmit | ½ | 1⅛ | 2¼ | 3⅝ | 6 | 9 | 13 | 18 | 24 | 32 | Horse Power |

for every ten revolutions per minute.

## STEP-CONE PULLEYS

Having the Eye bored, a Steel Key fitted, the Faces turned convex, and the Risers faced. They can be supplied to almost any desired dimensions and with any number of Steps.

They are priced by valuing Each Step as a separate Finished Pulley of the same diameter and breadth, and thereafter adding to the whole, a sum equal to one-third of the amount.

For Example:—A Cone Flanged at both ends and having 3 steps 30 inches, 27 inches and 24 inches Diameter and each 6 inches broad on Face, amounts to £5 12 8.

THUS { 1 Finished Single-Flanged Pulley 2' 6" × 6" £1 13 10
1 do. do. do. 2' 3" × 6" 1 5 8
1 do. Plain do. 2' 0" × 6" 1 5 0 }
4 4 6
Add one-third of the amount .. .. 1 8 2
Total £5 12 8

## STEEL SHAFTING

Made exactly to the Lengths required; accurately turned, polished, varnished, and packed.

| DIAMETER........inches | 1¼ | 1½ | 2 | 2¼ | 2½ | 2¾ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Plain Shafts....per foot | 1/8 | 2/- | 2/4 | 2/9 | 3/3 | 3/10 | 4/6 | 6/2 | 8/4 | 11/- | 14/6 | 18/6 | 23/6 |
| Key Flats ....... " | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 1/6 |
| Key Grooves..... " | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 3/- |
| Reduced Journals...each | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 11/- |
| Loose Collars M.. " | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 13/- |
| Loose Collars H .. " | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 22/- |
| Fast Collars........ " | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 26/- |

SWELLED SHAFTS are priced by valuing each portion as a separate Plain Shaft and thereafter adding to the whole, a sum equal to one-third of the amount. For Example:—A Swelled Shaft 24 feet long, in three equal portions 3", 3½" and 5" diameter, amounts in all to £13 8 5, thus:—
8 feet of 3" @ 4/6 = 36/-; 8 feet of 3½" @ 6/2 = 49/4; 8 feet of 5" @ 14/6 = 116/-......£10 1 4
Add one-third of the amount...... 3 7 1
£13 8 5

## MORTICE WHEELS

Either Spur or Bevel, made exactly to any dimensions desired, having the Eye bored and slotted, and a steel-Key fitted.

The Teeth, which are forced very tightly into the Mortices, are accurately pitched and carved in a Patent Machine, the Tenons being pinned and firmly secured with Keys.

The Teeth are of selected Scotch Beech, grown on hard subsoil, felled in the Autumn, and seasoned for several years.

They are at once blocked out when an order arrives, and are subjected to a process which makes them still more dry and hard by the time the Wheel is ready for cogging.

The Price of a completely finished Mortice Wheel, as above described,

| with Teeth | 2 | 3 | 4 | 5 | 6 | 7 | 8 or more | inches broad. |
|---|---|---|---|---|---|---|---|---|
| is .. .. | 2½ | 2⅜ | 2¼ | 2⅛ | 2 | 1⅞ | 1¾ | times the |

Price, as per List, of an ordinary Gear Wheel of the same size.

For Example:—A Spur or Bevel Mortice Wheel 5' 6" × 11" is charged (£19 × 1¾) £33 5/-

Although Scotch Beech is now preferred by the majority of our English and other Clients, we still hold a stock of Hornbeam, which can be used if desired.

## PEDESTALS.

HORIZONTAL.

ANGLE.

All are of massive proportions and rigid design.

They do not require adjustment until after several years of use.

The M Class is for medium work; the H for heavy work, or where extra substantiality is desired.

| Bore. | Lengths of Bearings. M Peds. | H Peds. |
|---|---|---|
| inches. | inches. | inches. |
| 2 | 3½ | 4 |
| 3 | 4½ | 6 |
| 4 | 5½ | 8 |
| 5 | 7 | 9½ |
| 6 | 8½ | 11 |

Other sizes being in like proportion.

HANGING.

VERTICAL.

Each furnished with locknut bolts, and fitted with heavy double Interchangeable Gun-Metal Bushes, bored, turned, finished and painted complete.

| BORE .. .. .. .. | 1¼" | 1½" 2" | 2¼" 2½" | 2¾" 3" | 3½" | 4" | 4½" | 5" | 5½" | 6" |
|---|---|---|---|---|---|---|---|---|---|---|
| A Horizontal M Pedestal .. | 5/- | 6/6 8/- | 10/6 13/- | 17/- 22/- | 31/- | 45/- | 54/- | 70/- | 86/- | 105/- |
| A Horizontal H Pedestal .. | 7/- | 9/- 11/- | 14/- 17/- | 21/- 26/- | 38/- | 52/- | 70/- | 88/- | 106/- | 126/- |
| An Angle M Pedestal .. | 9/- | 11/6 14/- | 17/- 21/- | 26/- 32/- | 44/- | 59/- | 76/- | 94/- | 113/- | 133/- |
| An Angle H Pedestal .. | 12/- | 15/6 19/- | 23/- 28/- | 34/- 40/- | 55/- | 72/- | 95/- | 114/- | 135/- | 158/- |
| From Top to centre of Bore.. | 12" 16" | 12" 18" 24" | 12" 18" 24" | 12" 18" 24" | .. | .. | .. | .. | .. | .. |
| A Hanging M Pedestal .. | 13/- 19/- | 17/- 24/- 35/- | 23/- 32/- 43/- | 32/- 42/- 54/- | .. | .. | .. | .. | .. | .. |
| A Hanging H Pedestal .. | 17/- 25/- | 22/- 31/- 44/- | 29/- 39/- 53/- | 39/- 50/- 65/- | .. | .. | .. | .. | .. | .. |
| From Back to centre of Bore | 4" 6" | 4" 6" | 6" 9" | 6" 9" | 6" 9" | 6" 9" | 6" 9" | .. | .. | .. |
| A Vertical M Pedestal .. | 9/- 11/- | 14/- 17/- | 21/- 25/- | 31/- 37/- | 43/- 50/- | 58/- 66/- | 75/- 84/- | .. | .. | .. |
| A Vertical H Pedestal .. | 12/- 15/- | 19/- 23/- | 28/- 34/- | 40/- 47/- | 55/- 65/- | 74/- 84/- | 92/- 105/- | .. | .. | .. |

A Pedestal, of a Size between any two of those priced in the List, is priced same as the larger of the two.

## COUPLINGS

Per Pair of Halves, each bored, faced and furnished with Finished Bolts and Keys complete.

| BORE..............inches | 1¼ | 1½ | 2 | 2¼ | 2½ | 2¾ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A Complete Coupling M | 7/- | 9/6 | 12/- | 15/- | 18/- | 21/6 | 25/- | 32/- | 40/- | 50/- | 61/- | 74/- | 90/- |
| If Polished all over add | 2/- | 2/6 | 3/- | 3/6 | 4/- | 4/6 | 5/- | 7/- | 9/- | 11/- | 13/- | 15/- | 18/- |
| †If Fixed and Faced " | 5/- | 6/- | 7/- | 8/- | 9/- | 10/- | 11/- | 14/- | 16/- | 19/- | 23/- | 28/- | 34/- |
| *If Faced R and P " | 2/- | 2/- | 2/- | 2/6 | 3/- | 3/6 | 4/- | 5/- | 6/- | 7/- | 8/- | 9/- | 10/- |
| Total...... | 16/- | 20/- | 24/- | 29/- | 34/- | 39/6 | 45/- | 58/- | 71/- | 87/- | 105/- | 126/- | 152/- |
| A Complete Coupling H | 10/- | 13/- | 16/- | 19/6 | 23/- | 26/6 | 30/- | 38/- | 48/- | 60/- | 73/- | 88/- | 106/- |
| If Polished all over add | 2/- | 2/6 | 3/- | 3/6 | 4/- | 5/- | 6/- | 8/- | 10/- | 12/- | 13/- | 18/- | 22/- |
| †If Fixed and Faced " | 5/- | 6/- | 7/- | 8/- | 9/6 | 11/- | 13/- | 15/- | 17/- | 20/- | 25/- | 31/- | 38/- |
| *If Faced R and P " | 2/- | 2/6 | 3/- | 3/6 | 4/- | 5/- | 6/- | 7/- | 8/- | 9/- | 10/- | 12/- | 14/- |
| Total...... | 19/- | 24/- | 29/- | 34/6 | 40/6 | 47/6 | 55/- | 68/- | 83/- | 101/- | 123/- | 149/- | 180/- |

A Shaft, of a Diameter between any two of those priced in List, is priced in proportion.
A Collar, or a Coupling, of a Size between any two of those priced in List, is priced same as the larger of the two.
† Upon its own Shafts. * Recessed and projecting.

## HAULAGE ROPE PULLEYS.

Bored, Slotted, and Steel Key fitted.

| | | | |
|---|---|---|---|
| 1' 6" Diameter | £1 | 7 | 0 |
| 2' 0" " | 1 | 14 | 0 |
| 2' 6" " | 2 | 5 | 0 |
| 3' 0" " | 3 | 0 | 0 |
| 3' 6" " | 3 | 10 | 0 |
| 4' 0" Diameter | £3 | 3 | |
| 5' 0" " | 6 | 10 | |
| 6' 0" " | 8 | 0 | |
| 7' 0" " | 10 | 0 | |
| 8' 0" " | 12 | 5 | |

The Rim of each is 4½" wide, and the Groove is 3" deep. Any Rope not exceeding 1½" diameter will run freely in the bottom of the Groove, clear of the sides; but when specially desired, we make the Groove V shape, to grip any Rope from ¾" to 1½" diam. The Arms are of Steel, cast solid in the Centre and Rim.

The Diameters are those of the Pulleys at Bottom of Groove.

## FIXINGS.

WALL-BOXES.

HANGERS.

All are of massive proportions and rigid design.

The Slots below the Pedestals are for holding Oil-Catchers.

A Staple Hanger is open at the top, but otherwise similar to a Solid Hanger.

A Solid Hanger is solid at the bottom, but otherwise similar to the Illustration.

An Opening Hanger as per Illustration, has a removable plate, which provides a clear opening for the Shaft to pass through from below, thereby simplifying erection.

BRACKETS.

STOOLS.

Each having the desired Pedestal, as ordered from opposite List, fitted on with hardwood packing, joggle keys, and locknut bolts; and painted complete.

| For Horizontal Pedestals up to / For Angle Pedestals .. | 2" / 1¼" | 3" / 2" | 4" / 3" | 5" / 4" | 6" / 5" |
|---|---|---|---|---|---|
| A Sole-Plate (not illustrated) .. | 5/- | 10/- | 17/- | 26/- | 37/- |
| Depth into Wall / A Wall-Box .. | 4½" 9" / 12/- 18/- | 4½" 9" / 17/- 25/- | 9" 13½" / 34/- 43/- | 9" 13½" 18" / 46/- 60/- 75/- | 13½" 18" 22½" / 82/- 105/- 128/- |
| From Top to centre of Bore / A Staple Hanger / A Solid Hanger / An Opening Hanger | [illegible] | [illegible] | [illegible] | .. .. .. | .. .. .. |
| From Back to centre of Bore / A Bracket .. | 9" 12" 18" / 11/- 14/- 18/- | 12" 18" 24" / 20/- 27/- 36/- | 18" 24" 30" / 40/- 55/- 72/- | 18" 24" 30" / 58/- 80/- 104/- | .. .. .. |
| From Base to centre of Bore / A Stool .. | 18" 24" / 19/- 27/- | 24" 30" / 32/- 40/- | 24" 30" / 37/- 44/- | 24" 30" 36" / 43/- 65/- 90/- | 24" 30" 36" / 85/- 95/- 130/- |

A Fixing, of a Size between any two of those priced in the List, is priced same as the larger of the two.

Untooled Castings also Supplied.

**THIS LIST,**
Of Accessories for the Transmission of Power, is the Only Complete and Perfect One in the World. Our Copyright, in Sections and in Whole, has been carefully
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and we are prepared to prosecute Infringers or partial Imitators to the full extent allowed by Law.

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OTHERWISE
special Terms may be arranged previous to business, to suit the convenience of Clients.

Trade Discounts also Allowed.

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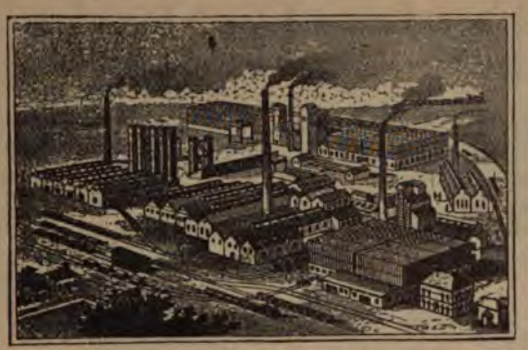

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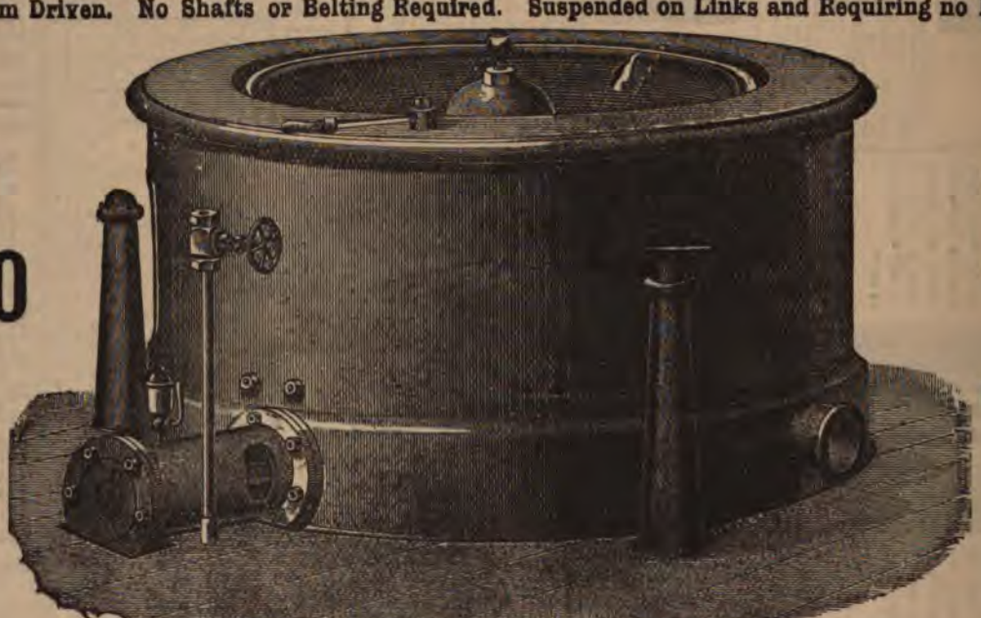

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## Tenders.

BOROUGH OF ILKESTON.

THE Gas Committee are prepared to receive TENDERS for the SURPLUS TAR made at their Gas Works during the ensuing year.

Conditions and form of Tender may be had of the Manager (Mr. F. C. Humphrys), the Gas Works, Rutland Street, Ilkeston.

Sealed endorsed Tenders must be delivered to the undersigned by five o'clock in the afternoon of Thursday, the 29th day of October inst.

The Committee do not bind themselves to accept the highest or any tender.

By Order,
WRIGHT LISSELL,
Town Clerk.

Town Hall, Ilkeston,
11th October, 1892.

## Miscellaneous.

☞ **Replies to Advertisements addressed to the "Chemical Trade Journal" Office are forwarded to Advertisers, post free, on the day of their receipt.**

TO Manufacturing Chemists and others.—Advertiser, possessing practical chemical knowledge, accurate analyst, and experienced in chemical works and in the chemical trade generally, desires engagement. Is thoroughly conversant with Bookkeeping, etc., and would be willing, if necessary, to fill up time with office duties. Unexceptional references and moderate salary.—Address A 195, *Chemical Trade Journal* Office.

WANTED, a Working Man, thoroughly acquainted with the Manufacture of Sulphuric Acid from Spent Oxide. Apply H 194, *Chemical Trade Journal* Office.

AS Manager or Foreman Chemical, Tar, Benzol, &c., Works; many years' practical experience; can plan, erect new, or modernise old works; willing to take an interest.—Address "Naphtha," *Chemical Trade Journal* Office.

TO BE LET.—Near Swansea, Works with most capacious buildings and wharves; sea, canal, and railway communication. Rhondda coal, abundant water, Coppee coke. Extensive tipping ground. —T. Williams, solicitor, Neath.

WANTED.—Air Compressor, good working order. Double vertical preferred, 8 inch steam, 9 inch air cylinders. Also Carter's or similar Disintegrators.—Address Fuller jr., Chemical Plant Merchant, 88, Great Charles-street, Birmingham.

TO LET ON LEASE, at a low rental (with option of engine power), the whole or any portion of a WORKS adjoining Sulphuric Acid and Manure Works, covering about two acres, 1½ miles from Wolverhampton; canal alongside and railway connection throughout with main line; lately used for galvanising.—Address "Works," c/o Stirk and Brewer, solicitors, Wolverhampton.

TWO Disintegrators, One Edge Runner Mill, several Stone and Ore Breakers, Two Roller Mills and One Mixing Machine as good as new.—S. Mason & Co., Stone Breaking and Grinding Machine Makers, Brandon Street, Leicester.

SULPHATE OF AMMONIA STILL for Sale. Still, Heater, Lime Tank, Lime Pump, and Regulating Valves complete. Capacity, one ton of sulphate per week. Apply Alpha, *Chemical Trade Journal* office, 32, Blackfriars-street, Manchester.

SULPHURIC Acid free from Arsenic. For Sale, 300 tons, 130° Tw. Best offers wanted, in buyers' tank trucks or carboys.—Apply Box 306, *Chemical Trade Journal* Office.

CARBONATE OF AMMONIA.—Wanted, full particulars of manufacture on large scale.—Brotherton & Co., Leeds and Wakefield.

JOHNSON'S FILTER PRESS for Sale, cheap and good condition; cloths, pump, air vessel and gauge complete.—R. W. Andrews, 24, Gray's Inn-road, London.

## Miscellaneous.—Cont.

TO BE SOLD, the LANCASHIRE MANURE COMPANY'S WORKS at Widnes with Machinery and 24,420 square yards of Freehold Land.—Address J. Hosking, 16, Fenwick Street, Liverpool. [16

CARBOLIC ACID CRYSTALS, 35 to 45 °/₀, for sale, for prompt delivery, cheap.—Apply Sadler & Co., Limited., Middlesbrough.

AMMONIA, all qualities and strengths. Enquiries solicited.
BROTHERTON & Co., Leeds and Wakefield.

SECOND-HAND Beer Hogsheads and Barrels for sale cheap. Campbell & Swainston Ltd., Argyll Wharf, Limehouse, London, E.

GOOD Second-hand Rum Puncheons for sale, cheap. Apply to Campbell & Swainston, Argyll Wharf, Thomas-street, Limehouse, London, E.

PACKING TIERCES for Sale, all sizes, cheap Campbell & Swainston, Ltd., Argyll Wharf, Limehouse, London, E.

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With special reference to their application to Dyeing, &c. By DR. R. BENEDIKT, Professor of Chemistry in the University of Vienna. Translated from the German by E. KNECHT, Ph.D., Head Master of the Chemistry and Dyeing Department in the Technical College, Bradford. 2nd Edition, Revised and Enlarged, 6s. 6d.

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**IRON and STEEL (butt or lap we and FITTINGS** for Gas, Water, Steam, Ammonia, and Hydrauli galvanized white enamelled inside, or coated by D Smith's Composition. In stock to 8in. diameter.
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## Tenders.

THE HUYTON AND ROBY GAS COMPANY.

TENDERS FOR TAR.

THE Directors of the above Company are prepared to receive TENDERS for the purchase of the SURPLUS TAR made at their works during the period ending 31st Oct. 1893.

The estimated quantity for disposal is about 120 tons.

Delivery into the contractor's tank wagons on the Company's siding at Huyton Quarry (L. & N. W. R. Co.)

Tenders endorsed "Tar" to be sent in not later than Saturday the 12th inst.

FRED. PRITCHARD,
Secretary and Manager.

Gas Office Huyton Quarry
near Liverpool.
1st November 1892.

## Miscellaneous.

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WANTED, on Hire or Purchase, Tank Truck to carry eight tons of Vitriol. Address Box 307, *Chemical Trade Journal* Office.

ADVERTISER (17) desires employment in London in Chemical Laboratory or Chemical Trade. Two years' experience, advanced Science and Art certificates. Address J. G. L., *Chemical Trade Journa* office.

WANTED, Carboy Stoppers. Address Box 308, *Chemical Trade Journal* office.

WANTED, a second-hand "Decline" Filter Press in Iron, with 24 chambers, 2 feet square, in perfect working order, with valves, efflus cocks, etc., complete. State price and where it can be seen.—Address J. C. Hodgson, engineer, 4, Warren-street, Stockport.

FOR SALE.—Cheap Surplus Stock: 1 Carter's Disintegrator No. 2, used for one month only. Steam Pump, Horizontal Steam Cylinder 5 in. by 12 in., Pump Cylinder 4 in. by 12 in.; ditto, steam cylinder 4 in. by 12 in., pump cylinder 2 in. by 12 in.; ditto, steam cylinder 4 in. by 10 in., pump cylinder 3 in. by 10 in. Steam engine, horizontal, 2 h.p. Can be seen and prices obtained by applying to W. J. Fraser & Co., engineers, 98 Commercial-road East London.

AS Manager or Foreman Chemical, Tar, Benzol, &c., Works; many years' practical experience; can plan, erect new, or modernise old works; willing to take an interest.—Address "Naphtha," *Chemical Trade Journal* Office.

HOMERTON.—Factory Premises To Be Let or Sold; area about 1,820 square feet; 12 h.p. nominal Steam Generating Boiler, set in brickwork; ventilating and chimney shafts; valuable plant, consisting of vats, tanks, &c., suitable for manufacturing chemist or any business requiring ample space; rent £100 a year. For full particulars, apply to Ball, Norris & Hadley, Auctioneers and Surveyors, 5, Argyll-place, Regent-street, London, W.

SULPHURIC Acid from Pyrites for Sale, 500 tons, 150° Tw. Best offers wanted f.o.r. or boat Lincolnshire.—Address L 199, *Chemical Trade Journal* Office.

TO be sold, Aquafortis Cylinder, almost new, 6ft. 6in. by 3ft. 6in.—Peter Ireland, Widnes.

WANTED, Situation as Chemist. Eight years' experience in Chemical, Manure, and Acid Works Laboratory. Two years at Finsbury College. Good testimonials. Accept moderate salary. Address "Manure," *Chemical Trade Journal* office.

TWO Disintegrators, One Edge Runner Mill, several Stone and Ore Breakers, Two Roller Mills and One Mixing Machine good as new.—S. Mason & Co., Stone Breaking and Grinding Machine Makers, Brandon-street, Leicester.

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Air is inhaled through a sponge and given out throu automatic valve.

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## Tenders.

MIDLAND RAILWAY.

NOTICE TO COLLIERY PROPRIETORS, TIMBER MERCHANTS, WHEELWRIGHTS, CHARCOAL BURNERS, FIREWOOD DEALERS, &c.

THE Midland Railway Co. are prepared to receive Tenders for the purchase of:—
Waste Oak Slabs, &c.
Broken-up Wagon and Carriage Wood, and
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produced in the carriage and wagon works at Derby and Bromsgrove during 1893.

Forms of tender can be had on application to Mr. Pettifor, Midland Railway, Derby; and samples of each description of wood may be seen at the works named, on showing a form of tender. Tenders will be received up to 9 a.m. on 1st December next.

## Miscellaneous.

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Battersea.—Condy's White Lead Works, with Fixed Plant and Machinery, and valuable letters patent for improvements in the manufacture of white lead. In one lot. With possession.

MESSRS. FULLER, HORSEY, SONS, AND CASSELL are instructed to SELL by AUCTION, on Thursday, November 24th, at 12 precisely, on the premises, Ford's Folly, Church-road, Battersea, the above LEASEHOLD PROPERTY, having a frontage of 90 feet to the Thames, and a total ground area of 19,785 square feet, the greater part of which is covered with buildings, including mill-house, crystallizing, corroding, evaporating, washing and precipitating houses, drying stores, engine and boiler-house, chimney shaft, dwelling-house, offices, &c. The letters patent and the whole of the plant and machinery will be included in the purchase. Held on lease for an unexpired term of 17 years, determinable, at a rental of £225. per annum. May be viewed by orders, and particulars had on the premises of Messrs. Pratt and Norton, Chartered Accountants, 9, Old Jewry-chambers, E.C.; of Messrs. Geo. and Wm. Webb, Solicitors, 11, Austinfriars, E.C.; and of the Auctioneers, 11, Billiter-square, E.C. Note.—In the event of the works not being sold as a whole, the Leasehold interest will be offered separately, and the Letters Patent and Plant and Machinery immediately sold in lots.

To White Lead Manufacturers, Paint Manufacturers, and others.

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WANTED, Tank (brick) to hold not less than 8 tons of tar; must be perfectly sound and fit for immediate use. Address, stating price, "Tar Distiller," *Chemical Trade Journal* Office.

FOR SALE, one Copper Cylindrical Digestor with hemispherical ends, 6ft. long by 3ft. diameter, for 150 working pressure, fitted with iron manhole lined with copper, wrought-iron outside casing for heating with oil or water on a tripod stand of cast-iron pillars, safety valve shell cock, complete. Has only been used two or three times, and is nearly as good as new. Price £150; free on rails. Address Thomas Owen and Co., Limited, Ely Paper Works, Cardiff.

PROPRIETOR of Chemical Works with exceptionally good connections and increasing remunerative business, but with insufficient capital, is desirous of forming a Syndicate to float Limited Company. Would invest half the purchase money in the new business. Highest references. Capital (including purchase money) about £10,000. Apply "Chemical," *Chemical Trade Journal* Office.

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SULPHURIC Acid from Pyrites for Sale, 500 tons, 150° Tw. Best offers wanted f.o.r. or boat Lincolnshire.—Address L 199, *Chemical Trade Journal* Office.

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## Colour in Woven Design.

By Professor ROBERTS BEAUMONT, of the Textile Industries Department, The Yorkshire College. With 32 Coloured Plates and numerous Illustrations. 21s.

"An excellent work on the application of colour to woven design."—*Textile Manufacturer.*

"The illustrations are the finest of the kind we have yet come across, and the publishers are to be congratulated on the general excellence of the work."—*Textile Mercury.*

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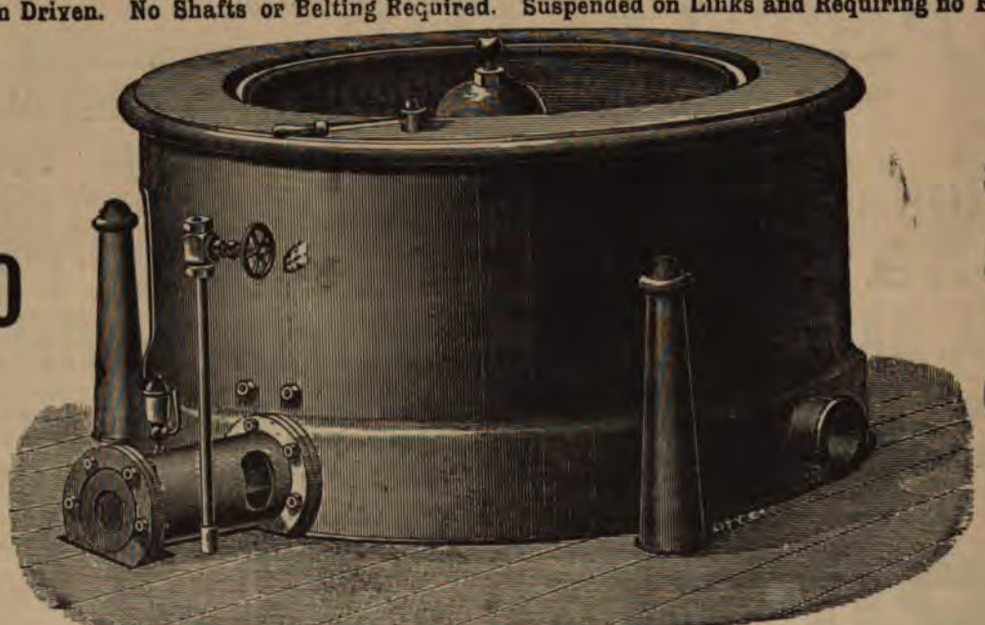

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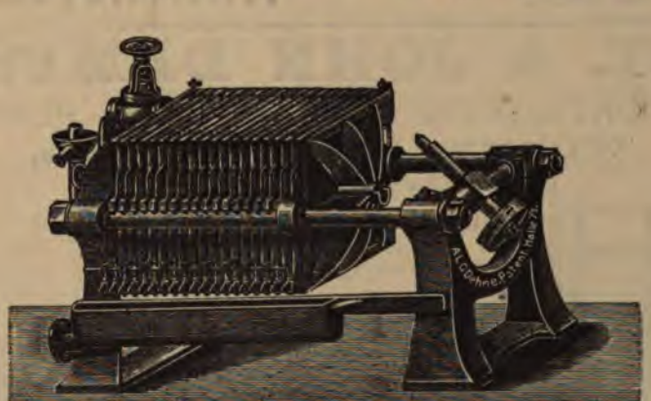

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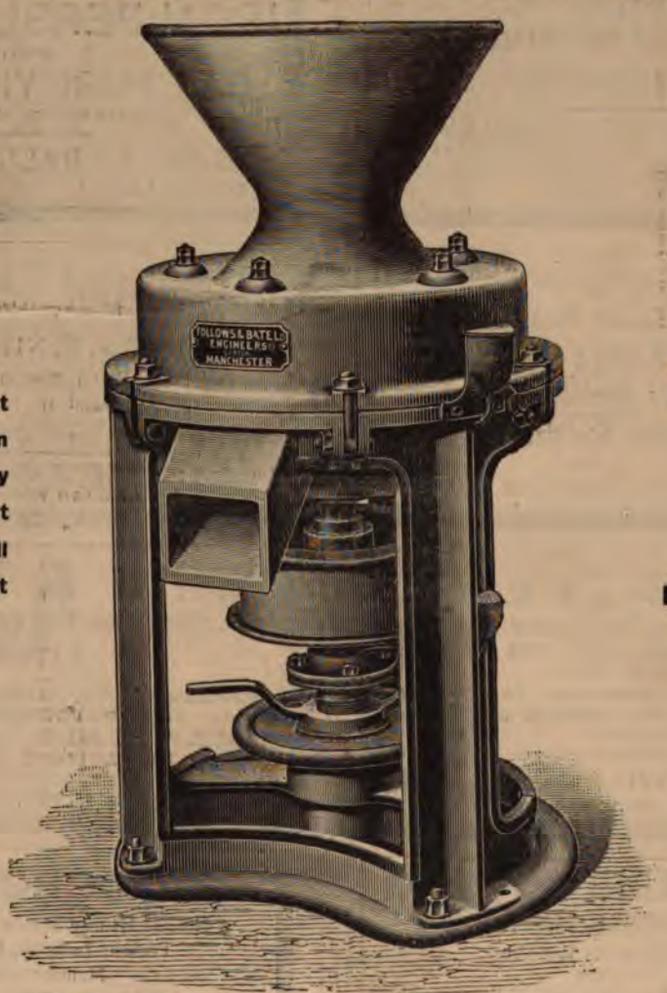


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